COMMUNITY INVOLVEMENT IN HEALTH PROGRAMMES: A GOVERNMENT & NON-GOVERNMENT PERSPECTIVE; UDAIPUR DISTRICT, RAJASTHAN, INDIA

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ABSTRACT

COMMUNITY INVOLVEMENT IN HEALTH PROGRAMMES: A GOVERNMENT & NON-GOVERNMENT PERSPECTIVE; UDAIPUR DISTRICT, RAJASTHAN, INDIA

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This thesis investigates the effectiveness, efficiency and the extent of community involvement in health programmes (CIH). The hypothesis to be tested was that participatory community health programs are more effective and efficient than less participatory programmes. Two existing programmes are examined: a government (ICDS) and non-government (NGO-Seva Mandir) approach. The communities targeted in the two programmes are among the poorest in India: the Bhils (tribals) of Udaipur District, Rajasthan. The methodology of the thesis combines both quantitative and qualitative measurements. The results of the study reveal that the more participatory health programme (NGO) is not as effective as the non-participatory programme (ICDS) as indicated by the nutritional status of children and IMR. The ICDS programme also proves to be more efficient in terms of staff time required to operate the programme, however the social cost/benefit analysis indicates that for the time and cost, the NGO programme is more efficient.

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LIST OF ACRONYMS

AC	Arm Circumference
ANM	Auxiliary Nurse Midwife
AWW	Anganwadi Worker
CDPO	Child Development Programme Officer
CHW	Community Health Worker
CIH	Community Involvement in Health Development
CMHO	Chief Medical Health Officer
CMR	Child Mortality Rate
HQ	Head Quarters
ICDS	Integrated Child Development Services
IMR	Infant Mortality Rate
LS	Lady Supervisor
MO	Medical Officer
MPW	Multi Purpose Worker
NCHS	National Centre for Health Statistics
NGO	Non-governmental Organization
PEM	Protein Energy Malnutrition
PHC	Primary Health Care
SD	Standard Deviation
TBA	Traditional Birth Attendant
VHW	Village Health Worker
WHO	World Health Organization

GLOSSARY

ANM	Female health worker at the sub-centre level of the national health system.
Chula	A mud-made village stove used to cook on. It is usually fuelled by wood and dried cow dung.
Malnutrition	Are the effects in the body from not eating enough food. These effects are often made worse by infection.
Matka	A large cauldron made of clay or metal used to store drinking water.
PEM	Is a kind of malnutrition which results from insufficient intake of energy, protein and other nutrients. This may cause a range of conditions; failing to grow, underweight or stunting.
Stunting	Indicates that the child is shorter than the reference child for that age. It represents slowing in linear growth over time or a cumulative deficiency in growth. It is associated with long term biological factors such as chronic insufficiency in protein and or energy intake, frequent infections, clinical factors such as low socio-economic-status of the family, and inappropriate feeding practices.
Underweight	Indicates that the child weighs less than the reference child for that age.
Wasting	Indicates recent or acute malnutrition, either from failure to gain weight or weight loss. It indicates that the tissue and fat mass are lower than expected for a reference child of that length.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Many gains have been achieved with regards to health and nutritional status of the worlds population since WWII. Within the developing world, a significant increase has been shown in life expectancy, in the control of epidemic diseases such as small pox, and a reduction in infant mortality rates (UNDP,1993:12). Despite these gains, there continues to be an increasing gap between the developed and developing world and between class structures within the developing world with respect to health and nutritional status. Although more than 60% of the population of developing countries has access to health services today, 1.5 billion people are still deprived of primary health care (UN,1990:27). While the per capita average calorie intake increased by 20% between 1965 and 1985, 150 million children under five (one in every three) suffer from serious malnutrition. Finally, despite the tremendous development efforts in the Third World since WWII, the maternal mortality rate in the South is 12 times that of the North (UN,1990:27).

The continuing imbalance of health and nutritional status during the past few decades has resulted in the adoption of community involvement as a strategy in health development, coinciding with an overall community participation[1] approach to planning and development. Participation or community involvement in health (CIH) development,

[1] Community participation and community involvement are used virtually interchangeably in this thesis. However, the text does reflect the adoption of the term community involvement by the health sector as a form of the more generalized term community participation.

is constituted by community participation in decision making, implementation, operation, monitoring and evaluation of health and nutrition programmes. This is ideally fostered through a decentralized format, that supports self-reliance (Rifkin,1990:2-3). Although CIH is a widely accepted concept as a strategy for health development, the strategy has rarely been tested in its practical application despite its formal use by many non-government (NGO) and government agencies (Oakley,1989:6).

It has long been recognized in India that the health status of the people cannot be raised unless the people become actively involved (WHO,1986:64). India has long been active with NGO programmes based on community participation. Recently government programmes have attempted the same. With India rating 134th out of a possible 173 countries on the United Nations Human Development Index (UNDP,1993:135-137), it provides a context for the development of innovative CIH programmes to combat the many health and nutrition problems facing the population. This in turn provides an opportunity to observe CIH in action.

1.2 Health and Nutritional Status of Rajasthan, India

Rajasthan, India has been the target of health and nutrition programmes since the 1950s. To date, Rajasthan has the highest crude birthrate, the highest infant mortality rate and the highest maternal mortality of the nation (Varma,1991:159). The cause of such poor health indicators includes a combination of historical factors, cultural influences, the economic situation and poor health services. To fill the gap of the over

strained state health system, many NGOs and government programmes[2] have been implemented, some of which are based on community involvement. Within the District of Udaipur an NGO initiated health unit and the government sponsored Integrated Child Development Services (ICDS) are two prominent programmes that attempt to reach the poorest of the poor through community involvement.

1.3 Problem Statement

It has been widely recognized that community involvement in health development is essential, what is lacking, however, are: (1) examples of how to effectively involve the community in improving community health; and (2) assessments of the impact of community involvement on community health.

1.4 Research Goal

The goal of this research is to examine two operational CIH programmes in terms of their effectiveness, efficiency, and extent of participation in order to demonstrate applications of CIH. The research hypothesis to be tested is: increased participation will produce a more effective and efficient community health programme.

1.5 Research Objectives

The objectives in order to foster the goals are:

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[2] Government programmes refer to government sponsored or implemented programmes that operate in addition to the state health system. These programmes may be in the form of community based initiatives.

1) To determine the effectiveness[3] of an NGO and government-based participatory health and nutrition programme.

2) To determine the financial cost and technical demand of an NGO and a government-based participatory programme to indicate the efficiency of both programmes.

3) To determine the extent and characteristics of participation in the NGO and government-based participatory health programmes.

1.6 Organization of Thesis

This thesis evaluates a government and a non-government community based health and nutrition programme by describing these programmes with respect to community involvement and examining their effectiveness and efficiency. Chapter Two reviews how past health initiatives evolved into today's thinking in planning and development. This chapter also looks more critically at the perception of community involvement in health development and contrasts a Government versus an NGO approach. Chapter Three discusses the framework for analyzing the effectiveness, efficiency and the characteristics of community involvement in the government and NGO initiated health programmes. This is followed by Chapter Four, which describes the people and culture participating in the study. This Chapter also provides an overview of the ICDS and NGO health programmes. Chapter five describes the methodology utilized for this study with results being discussed and analyzed in Chapters Six, Seven, Eight and Nine. This thesis summarizes and concludes with Chapter 10.

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[3] effectiveness in this context refers to: 1) the goal of achieving better nutritional status which may be illustrated by determining the nutritional status of children; 2) estimating child and infant mortality rates; 3) determining the percentage of children and mothers immunized; and 4) number and methods of family planning.

PART I: BACKGROUND AND METHODS

CHAPTER TWO

COMMUNITY INVOLVEMENT IN HEALTH PROGRAMMES: AN OVERVIEW

2.1 Introduction

Community participation in health programmes is not a new phenomenon; there was community support for traditional healers in past centuries and it is still a feature of traditional cultures today. The stress put on community participation as a formal process evolved through decades of development planning. Health, being an integral component of development, was and is influenced heavily by development and planning paradigms (WHO,1991:2). This chapter explores health development and the process by which participation became an integral part of health programmes. While examining the different forms of participation, this chapter will also discuss the advantages NGOs and government agencies offer and the obstacles each must overcome in order to operate with community involvement.

2.2 Review of Health Development Initiatives: An Historical Perspective

During the mid-nineteenth century, good health was viewed as the absence of disease (Rifkin,1980:1). This view was due to the remarkable gains achieved through clinical medicine. This view persisted over one hundred years fuelled by the discovery of penicillin, vaccinations and sterile techniques (Rifkin,1980:1). Priority was placed on scientific research and the curative side of health. National policies reflected the scientific curative approach to health development and the needs of the majority of the population,

by constructing hospitals and special units mostly in the urban areas. Problems arose when this practice was emulated by the developing world without the same sanitary and environmental conditions that were found in the developed world (Hardiman,1986:46).

An era of scientific medicine which realized the potential of control and eradication of the world's most devastating diseases by the mid-20th century, still had not radically improved the health of the majority of the world's population. A professor from the Liverpool School of Tropical Medicine, Rex Fendall summarizes the 20th century as "brilliant in its discoveries, superb in its technological breakthroughs, but woefully inept in its application to those most in need"(Dorozyuski,1975:8).

Gunner Myrdal was considered a catalyst for planners, both within and outside the medical field, who diverted the forms of health programmes from individual and curative expenditures to programmes that would affect large numbers of people (Rifkin,1980:2). He argued that health was not a bottomless pit for governments but was an investment in human resources that if improved could add to the productive capacity of a nation because it would increase person-hours available for work. This brought the health policy into the fast-growing development debate.

Prior to the 1970s, development strategies were largely dominated by attempts by development planners and workers to modernize and improve the technical performance of the physical aspects of a particular country or area (Oakley,1989:1). In the health sector this meant that the basic structure and philosophy of health care were built on a narrow system of technical specialization and professionalism that put patients in a subordinate and dependent status (Uphoff et al.,1979:237).

During the 1960s those concerned with health care also became concerned about the characteristics of those who received health care resources. Research showed that most resources were going to the urban centres in the developing world where most doctors resided. In addition, the statistics showed that most serious illnesses were being experienced by the rural poor whose health problems could be alleviated through preventive measures (Rifkin,1980:3). This concern resulted in a shift to preventive, decentralized community care based on epidemiological priorities. Planners believed that providing people with knowledge through health education would improve health. However the policy gradually degenerated into the mere provision of knowledge, handed down from experts resulting in only limited improvements of health. It became apparent that the involvement of beneficiaries in the planning of health services was required.

A second factor that influenced the adoption of community participation after WWII was that public health policy was not only concerned with controlling disease but became an integral part of general development policies (Rifkin,1980:4). As a result, health services were no longer the preserve of the medical profession but became an integral part of all development planning. Thus the debates of basic need, self reliance and people's participation began to include health care. The 1970's led to the search for alternative health systems (Oakley,1989:5).

The declaration of Primary Health Care (PHC) by the World Health Organizations (WHO) member nations, at the Alma-Ata Conference in 1977 prominently featured community participation (WHO,1981:4). Adoption of this declaration followed growing concerns about the appropriateness of health policies in developing countries. The

declaration emphasized the provision of basic services that would provide basic health care, preventive services, nutrition, maternal and child health and the utilization of simple medical technologies. Above all it called for the mobilization of local communities to take responsibility for their own health (WHO,1991:3).

A summary of the reasons why previous health development plans may have seen limited success includes (Oakley,1991:47):

- failure to encourage people to think or act for themselves in attempting to solve their health problems;
- failure to provide adequate training to local people to enable them to maintain the services that had been set up;
- community contributing resources and labour but not involved in design and implementation; and
- conflict between felt needs of the community and those determined by the professionals.

Although the problems mentioned above may not have been evident in all programmes, they led to arguments for adopting CIH as a strategy. The main arguments are summarized below (Oakley,1991:47):

- it is a basic right, builds self esteem and encourages a sense of responsibility;
- health services have limited resources, CIH makes more resources available by drawing on local resources and knowledge thus helping to extend the coverage and to lower overall cost;
- more cost-effective health services in the long-term lead to an adequate return on funds invested in the health sector;
- health programmes will be more appropriate and successful in meeting health needs; and
- CIH breaks dependency and may encourage people to become more involved in the development aspect of their community.

Health professionals seem to support CIH as a basic principle to be followed in health development. Through the influence of international agencies, governments of many developing countries have acknowledged the need for greater emphasis on

community based development strategies. NGOs have had a significant impact in promoting participation as a strategy. Academics in development studies have also pushed for community participation as a viable approach to social development arguing that it is not only acceptable but essential (Hardiman,1986:56).

2.3 Interpretation of Participation

The concept of CIH cannot be divorced from the broader aim of encouraging the active participation of local people in the development process as a whole. Thus any understanding of CIH must begin by attempting to understand the concept of participation (WHO,1991:2).

A review of the practice of participation across the various development sectors, suggests that participation may be interpreted three ways: 1) participation as contribution; 2) participation as organization; and 3) participation as empowerment (Oakley & Marsden,1985:20-25). Participation as contribution is seen as participation in development programmes consisting of voluntary or other contributions by people to predetermined programmes. They may take the form of material contributions or voluntary labour. Participation as organization is how the organization is structured and thus how the community is represented in the organization so that it influences the community on how they participate. Recently participation as empowerment has emerged with wide support. Although empowerment has become an accepted term in development vocabulary, it is difficult to define. It may be viewed as the development of skills and abilities to manage more effectively ones own affairs, and consequently having a say in

development matters (projects).

Still others further reduce the interpretation of participation into two categories or opposite ends of a spectrum: participation as a means and participation as an end (Oakley,1989:10-12). Participation as a means is to involve the community to reach a predetermined goal. In this case the results of participation are more important than the act of participation. Thus government and development agencies may use participation as a means of increasing efficiency, a management style intended to benefit both consumer and provider. This is an indirect form of participation, since the consumer may influence the delivery system but does not have direct control. Participation as an end emphasizes a process in which confidence and solidarity among rural people are built up. It is an active form of participation responding to local needs and changing circumstances.

Thus participation whether interpreted by contribution, organization and empowerment, or by a means and an end, has as its ultimate form control. True participation is seen as an end that results in empowerment. Both interpretations of participation have a common view in that both distinguish participation in terms of overall control. CIH tends to consider participation as an end that includes the means.

2.4 Interpretation of CIH

While there has been considerable discussion on community participation and many definitions have been suggested, CIH has not until recently been defined. CIH is understood to be local participation in the design and delivery of health care services.

The literature doubts whether to use CIH or community participation. The health sector has opted for CIH because of the deeper implication. The term involvement is preferable to participation because it implies a deeper and more personal identification of members of the community with PHC. A definition of CIH may prove to be helpful for this discussion.

> "CIH is a process whereby people exercise their right to play an active and direct role in the development of appropriate health services, in ensuring the conditions for sustained better health, and in supporting the empowerment of communities for health development. CIH implies a partnership between people, organizations and health professionals". (WHO Study Group;1991)

The WHO Study Group interprets the practice of CIH as:

- awareness and understanding of health and health problems; and
- access to information and knowledge about health service programmes and projects (1985).

This allows the community to become actively involved with health development and to ensure direct access to the health services available. It must be stressed that because health development is resource based, there will be fundamental differences in practice between regions.

2.5 Supporting Community Participation in Health Programmes: Government Programmes and Non-governmental Organizations

Providing health services to the poorest of the poor in the Third World has been an on going process by both government and non-governmental organizations. Several writers have argued that NGOs provide effective opportunities for the implementation of

community participation ideals. NGOs are claimed to be dynamic, flexible and socially concerned, staffed by persons who have deep personal commitment to humanitarian and participatory ideals. NGOs are not inhibited by bureaucratic rules and regulations and are not accountable to indifferent superiors or corrupt politicians. They thus provide a more open system for experimentation. NGOs are considered more effective in promoting community participation because they are innovative and adaptable. Although NGOs may have limited overall resources, they can raise funds for projects that governments would not be willing to support. NGOs are also considered to be more politically aggressive, championing radical programmes that bring about social change (Midgley et al.,1986:153-155).

Bureaucracies, on the other hand, have vested interests in maintaining the status quo. Public agencies are also more responsive to the pressures exerted on them by organized interest groups. Since the marginalized sectors of society have little opportunity to influence government, their interests are not likely to be served by state involvement in community participation. NGOs, however, are more likely to increase the organizational power and consequently the political pressure that can be exerted by the poor. Also, government programme staff are constantly mindful of their career prospects and thus concerned to promote official policies rather than the interests of the poor (Oakley et al.,1991:176-177).

There are drawbacks to NGOs promoting participation that need to be noted. Not all NGOs are flexible, and they may carry as many regulations and rigid management styles as the bureaucracies do. NGOs also may suffer from poor coordination and

duplication of services. Often communities with NGOs operating in them feel disillusionment with projects that were left unfinished. An issue that many NGOs face is resource constraints despite the amount of funds obtained from the international community. NGOs are unlikely to mobilize domestic revenues on a scale that even approaches those of the state. Projects are not replicated or expanded to reach a wider section of the population thus creating an imbalance (Midgley,1986:155-157).

Government development agencies are big and tend to be linked more directly to central government development plans and practices. In such projects participation is seen as an input or characteristic which the project seeks to include in its overall programming. Government programmes tend to operate within strictly defined goals and procedures. So can the commitment to participation be really seen within government programmes which are so closely tied to the political structure? NGOs see participation as a process and develop this process without the constraints of time and targets. Participation is linked to wider, structural issues and not limited to contributions or project management (Oakley et al.,1991:176-178).

However, although the NGO influence in development is widespread, particularly in participation, one cannot state outright that NGOs are more effective (Milwood; 1980). NGOs appear to have an advantage in supporting participation specifically where the following situations exist (Uphoff,1987):

- NGOs tend to be more administratively and financially stable than government programmes;
- where government is either not interested nor able to work in a particular area;
- where government lacks the technical or other skills to support the process;

- where government wishes to support participatory development but lacks the knowledge or capacity to be effective;
- where government is unable to co-ordinate the activities necessary to support participatory projects;
- where government is obliged to work within the pattern of traditional values and relations that is less able to work with groups outside the pattern; and
- where government is favourably disposed towards NGO initiatives in promoting participatory development.

2.6 Summary

Historically health care and health development centred around the curative process. Only when efforts of successfully increasing the health status of the world's population were not achieved, did the thinking process in health and indeed all of development change to one of preventive and participatory. CIH, a term coined by the international health professionals, was a direct result of a shift in development paradigm. The advances in community involvement have been pioneered by the NGO community who tend to have more dedicated staff, innovative techniques and fewer restraints to experiment with alternative development initiatives. From a discussion of what CIH entails, the following chapter discusses how one can evaluate CIH programmes.

CHAPTER THREE

CIH PROGRAMMES: METHODS AND IMPLICATIONS FOR EVALUATIONS

3.1 Introduction

CIH programmes should be evaluated to determine the extent and standard of its implementation and its impact on local health care. In practice, however, CIH brings with it a series of as yet unsolved conceptual problems in regards to evaluation (Oakley,1989:62). Since CIH seeks both to improve the provision of health care in the community and to encourage people's involvement in health and nutrition programmes it is necessary to evaluate not only the improvement in health at the community level but also the nature of the community involvement. Similarly in the evaluation of CIH it is necessary to record and analyze both the quantitative data that can be used to measure the changes that have occurred as a result of CIH and the qualitative aspects of participation.

The two complementary but distinct approaches may be summarized as follows:

Quantitative Aspects

Measurement ----------> Judgement

Qualitative Aspects

Description ----------> Interpretation

Traditionally the evaluation of health programmes have been based on the quantitative assessment of their value in terms of epidemiological or economic measures (Oakley et al.,1991:243). This important but limited measure ignores the perception of the beneficiaries and does not take into account the descriptive aspects of the programme

or the dynamic nature of the community based programme.

Qualitative indicators of CIH are conceptually different from those used in the evaluation of health services, which focus on activities, productivity, utilization and the quality of services. Qualitative indicators should describe changes in community dynamics to show the potential, as well as the actual, acceptance or rejection of a health programme (WHO,1991:42). They need to describe such things as the type of activities in which communities participate, the degree and intensity of their participation, who participates to what extent and why. These indicators include characteristics of the organization and leadership development.

Quantitative indicators include economic indicators and assessment of benefits. Indicators need to be identified in light of the objectives of CIH and relating to the goals and priorities on individual health projects and programmes and to the contexts and conditions in which they operate (WHO,1991:43).

3.2 Measuring Effectiveness

The factors or indicators measuring effectiveness or benefits of health and nutrition programmes may be generated by examining the objectives and priorities of the CIH programmes, determining the appropriate health and nutrition indicators suggested in the literature for these objectives, and assessing how the programme outputs have influenced the chosen indicators.

3.2.1 Measuring Nutritional Status

Nutritional assessment may be defined as "the interpretation of information obtained from dietary, biochemical, anthropometric and clinical studies" (Gibson, 1990:4). The information is used to determine the health status of individuals or population groups as influenced by their intake and utilization of nutrients. Nutritional assessment systems can take the form of surveys, surveillance and screening. Nutritional assessment systems use a variety of methods to characterize the development of a nutritional deficiency state. The methods are based on dietary, laboratory, anthropometric and clinical measurements.

It has been recommended by the World Health Organization (WHO) that anthropometric measurements be used to assess the nutritional status of vulnerable groups. Vulnerable groups include children in impoverished areas (WHO,1983:10). This methodology is aimed at programmes whose objective is to provide supplementary food in order to improve nutritional status. Anthropometric assessment is recommended for children under 10 years of age. Children beyond the age of 10 are advised not to be included because anthropometric changes associated with puberty may bias the results.

The measurements required for anthropometric assessment of nutritional status are age, sex, height or length, and weight (Carlson and Wardlaw,1990:6). Often arm circumference is included. These measurements can be used to calculate standard deviation scores (Z-scores), which should be compared with international reference

values, the NCHS[4] growth curves (WHO Working Group:1986:930).

The indicators of deferent aspects of malnutrition that use anthropometric measurements are (WHO Working Group:1986:930):

1) Low weight-for-height (wasting) - indicates recent or acute malnutrition, either from failure to gain weight or weight loss. It is associated with seasonal patterns, changes in food availability and disease prevalence. It indicates that the tissue and fat mass are lower than expected for a reference child of that length.

2) Low height-for-age (stunting)-indicates that the child is shorter than the reference child for that age. It represents slowing in linear growth over time or a cumulative efficiency in growth. It is associated with long term biological factors such as chronic insufficiency in protein and or energy intake, frequent infections, clinical factors such as low socio-economic status of the family, and inappropriate feeding practices.

3) Low weight-for-age (underweight) - indicates either stunting, or wasting or a composite of stunting and wasting, indicating the extent of malnutrition. However the indicator does not distinguish between wasting and stunting.

4) arm circumference screening for PEM (wasting) resulting from acute malnutrition and amenable to nutrition intervention (McDowell and Savage King, 1982) when weight and stature measurements are not possible and precise age of the child is unknown (Gibson,1991:257).

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[4] Although the NCHS data set is comprised of anthropometric measurements of children from the United Sates, it is appropriate for comparison between and within populations. Populations may refer to developing countries as well. A study conducted by Agrawal et al. confirmed that the NCHS data set was not culturally biased by concluding that the level of growth performance achieved by children of an affluent section in at least one part of the country (India), corresponds to that represented by the NCHS data set (1991:66).

The above indicators can be used to describe a child population. In addition, there are standards for classifying degrees of malnutrition,e.g., moderate malnutrition is weight for age less than minus two standard deviations from the reference median and severe malnutrition is weight for age less than minus three standard deviations from the reference median (Carlson and Wardlaw,1990:28).

3.2.2 Health Indicators

When Primary Health Care (PCH) was adopted as a strategy by all WHO member states, health indicators were identified in order to assess the effect or impact of such a strategy. The indicators included infant mortality, child mortality and immunization. The annual UN Development report and the more recent World Bank Reports have also included these as indicators of development. In reviewing health indicators and the objectives of the Government of India, Rajasthan and the two programmes, it became clear that family planning methods utilization was a main objective for the area. Thus it should be included as an indicator in the evaluation. Although there are many other health indicators, these were identified as the most revealing and significant by programme officers and government officials in the area.

3.3 Measuring Efficiency

Evaluating efficiency of health and nutrition programmes is essentially comparing alternative ways of attaining the same goal or objectives. Because resources are scarce, one naturally wants to attain the objectives using the least amount of resources.

Economists use cost/benefit analysis and cost/effectiveness as a tool for comparative evaluation. Both methods measure inputs as costs in monetary terms however they differ in measurement of outcomes. Cost/benefit analysis attempts to value all socially relevant outcomes in monetary terms and cost/effectiveness analysis concentrates on one major desired outcome or benefit and estimates the cost per patient (or treatment, etc.) of achieving that objective.

In practice cost/benefit analysis is used to evaluate a particular health service programme or action. One problem associated with this form of evaluation is the fact that most benefits in the health sector can not be reduced to monetary values (WHO,1975:31). This method is most useful for health programmes that have a major impact on economic development. Cost/effectiveness is useful for evaluating different methods of attacking a single disease problem (WHO,1975:31). While this is appealing for its specificity, the criterion is unable to handle activities producing several different kinds of benefits simultaneously (Berman,1985:36).

Both methods have limitations when dealing with social projects where the nature of benefits are not amenable to easy measurements in money or quantitative terms (Mathur,1985:76). Social cost/benefit analysis has emerged as a method that does not require costs or benefits to be deduced into monetary value. The costs are taken as input costs meaning time, number of staff and financial burden and benefits are seen as descriptive. The goals achievement method (GAM) is a tool used by many planners to determine the most appropriate method of analyzing efficiency (Conyers and Hill,1984:139). The purpose of the GAM is to find out whether the projects under

consideration will help in achieving the goals that may have been set for the development in the local area. In GAM benefits are taken to represent progress towards specified goals and costs to represent retrogression. This method goes on further to establish priorities and assess which projects satisfy which goals.

Although appraisals of projects are usually undertaken during the identification stage of the planning cycle, summative or formative appraisal of programmes are essential when a comparison is being made.

3.4 Measuring Community Involvement (Participation)

Community involvement is the process by which the community participates in the programme. This may be analyzed in various ways. Traditionally participation has been measured in terms of quantitative aspects (ie., attendance at meetings, etc.). Although this is informative, the qualitative aspect will provide much needed insight. This chapter focuses on the process of participation, namely the breadth and form.

3.4.1 Breadth of Participation

Within the health sector, Rifkin has described a framework for analysis that involves descriptive factors and action factors (refer to Table 3.1) (Rifkin,1990:17).

Table 3.1 Framework to Examine Community Participation

DESCRIPTIVE FACTORS	ACTION FACTORS
cultural	assessment of needs
economic, social and political	community organization
historical	programme management
government policy decentralization	resource mobilization
local level organization	leadership development
core/periphery communication	attention to the needs of the poor

From this framework one can deduce the degree to which the descriptive factors encourage participation. The action factors assess how the programme operates in certain areas. This is an intuitive measure that combines the organizational structure and management styles. Rifkin uses these action factors as a ranking system in which a programme or project may be given a score of one to five on the various action factors.

An example of the ranking system used in a health and nutrition programme is illustrated by Shrimpton (1989:7) (refer to table 3.2). In this example a framework to analyze participation has been modified to suit the programmes needs. Rifkin et al. uses the five issues of leadership, organization, resource mobilization, management and needs assessment for the evaluation of participation in a Nepalese health project. The Nepal case study is further developed by plotting the rankings as to visualize the breadth of participation (Rifkin et.al.,1988:937).

Table 3.2 Framework for Judging Community Participation; a ranking system

Indicator	Ranking 1.Nothing/narrow	2.Restricted/small	3.Mean/fair	4.Open/good	5.Wide/excellent
Needs assessment/action choice	None	done by outsiders with no community involvement	assessment by outsiders and discussed with community whose interests are considered	community does assessment and outsider helps in analysis and action choices	community does assessment/analyses/action choices
Organization	activity imposed with no community support	activity imposed, but some or little community organization structure	activity imposed, but became very active	active co-operation with other community organizations	existing community organizations involved in controlling activities
Leadership	one-sided organizational support dominated by elite or health staff	programme staff working independent of social interest groups or community support structure	organizational support functioning under leadership of independent programme staff	community active taking initiative together with programme staff	organizational support fully represents variety of interests in community and controls programme staff
Training	little or no training of para-workers or in unfamiliar language	lengthy pre-service training of para-workers in remote institution with no in-service training	pre-service para-worker training in local institution with little in-service training	short local pre-service training followed by regular in-service training by outsiders	short local pre-service training, plus regular in-service training, plus regular in-service training through supportive local supervisor/trainers
Resource mobilization	no resource contribution by community; No fees or services; para-workers externally financed.	fees for service, no-fund raising, community has no control over money collected. Para-workers externally paid	fees for service, no fund raising, community has no control over money collected;	occasional community fund-raising, but no fees, and VHC controls allocation of money; CW voluntary	VHC raises funds, collects fees and controls allocation of money, pays CW
Management	induced by health staff; CW only supervised by health staff	CW manages independently with some involvement of VHC; supervision by health staff	VHC self managed without control of CW activities	VHC self-managed and involved in supervision of CW	CW responsible to and actively supervised by VHC

Orientations of action	no clear objectives, no targeting, curative only	process-oriented objectives, but no targeting; more curative than preventive	impact-oriented objectives, but no targeting; more curative than preventive	impact-oriented objectives, VHW interventions targeted to at-risk groups. More curative than preventive.	impact-oriented objectives, CW interventions targeted to at-risk groups; preventive and curative
Monitoring evaluation /information exchange	no MIS, or information used locally; nobody aware of problem dimension or programme progress	information sent to outsiders who are aware of problem dimension and programme progress, but not fed back to VHC	IS used for routine daily activities/decision-making by CW who is aware of dimension of process and programme progress	VHC receives information necessary for decision-making from CW; VHC aware of problems, programme progress/benefits	VHC disseminates so that community is aware of problems, programme progress/benefits

(Source: Shrimpton, 1989:7)

The framework presented above is more detailed and quantifies a qualitative process which may simplify comparison of two CIH programmes. The issues raised in the framework, however, may be limiting and thus should be modified to suit each particular evaluation. Whichever method is utilized description and perception are key to analyzing the extent of community involvement in health development.

3.4.2 Form of Participation

The distinction between breadth and form of participation lies in the way one describes participation. The form of participation identifies the type of participation and what is used by the programmes to achieve that type. Samuel Paul of the World Bank, proposes a framework for analysis that encompasses the objectives, intensity and instruments of community participation and their interrelationships (1987:4). He argues that the mix of objectives, intensity and instruments of participation tends to vary depending on the nature of projects and their contexts.

In the context of development, participation may be viewed as a process that serves one or more of the following objectives:

Table 3.3 Table describing the objectives, instruments and intensity of participation.

OBJECTIVES	INSTRUMENTS	INTENSITY
empowerment	information sharing	field workers of programme
building beneficiary capacity	consultation	community workers/committees
effectiveness	decision making	user groups
share the costs	initiating action	
efficiency		

The objectives of participation may overlap, a project or programme may simultaneously pursue several objectives. A higher level of objective tends to incorporate some of the lower objectives. For example, empowerment implies capacity enhancement but the reverse may not necessarily be true or the efficiency objectives may not lead to empowerment.

Instruments used by the programme to seek participation may come in various forms. The highest form is one that initiates action. This instrument relies on the beneficiaries taking their own decisions about developmental issues. The lowest form of instrument used is information sharing where the programme informs the beneficiaries about certain aspects and decisions being made. In between lie consultation and decision making.

The intensity of participation includes three levels. The highest level being user groups. This occurs rarely since the beneficiaries tend to be large groups of persons in which case it is unlikely that all are involved in the programme. The second level is the use of community workers or committees. This involves the community working as staff or volunteers in the programme. The lowest level of intensity is considered to be programme field workers. This involves only programme staff connecting at the village level.

The interrelationships among objectives, intensity and instruments will vary from one case to the other. Usually the higher the objective the more intense the method and the more instruments used. It must be emphasized that a programme will use a combination of objectives, intensity and instrument methods at different times. However,

most programmes tend to focus on one specific intensity and instrument use.

3.5 Summary

The evaluation of CIH programmes involves the examination of the effectiveness, efficiency, emphasizing the breadth and form of participation. The indicators of effectiveness depend on the goals and objectives of the health programme to be evaluated. The indicators of efficiency are best described by examining the inputs required for the outputs gained. To assess the extent and form of community involvement in health programmes two frameworks have been proposed, each with distinct features.

CHAPTER FOUR

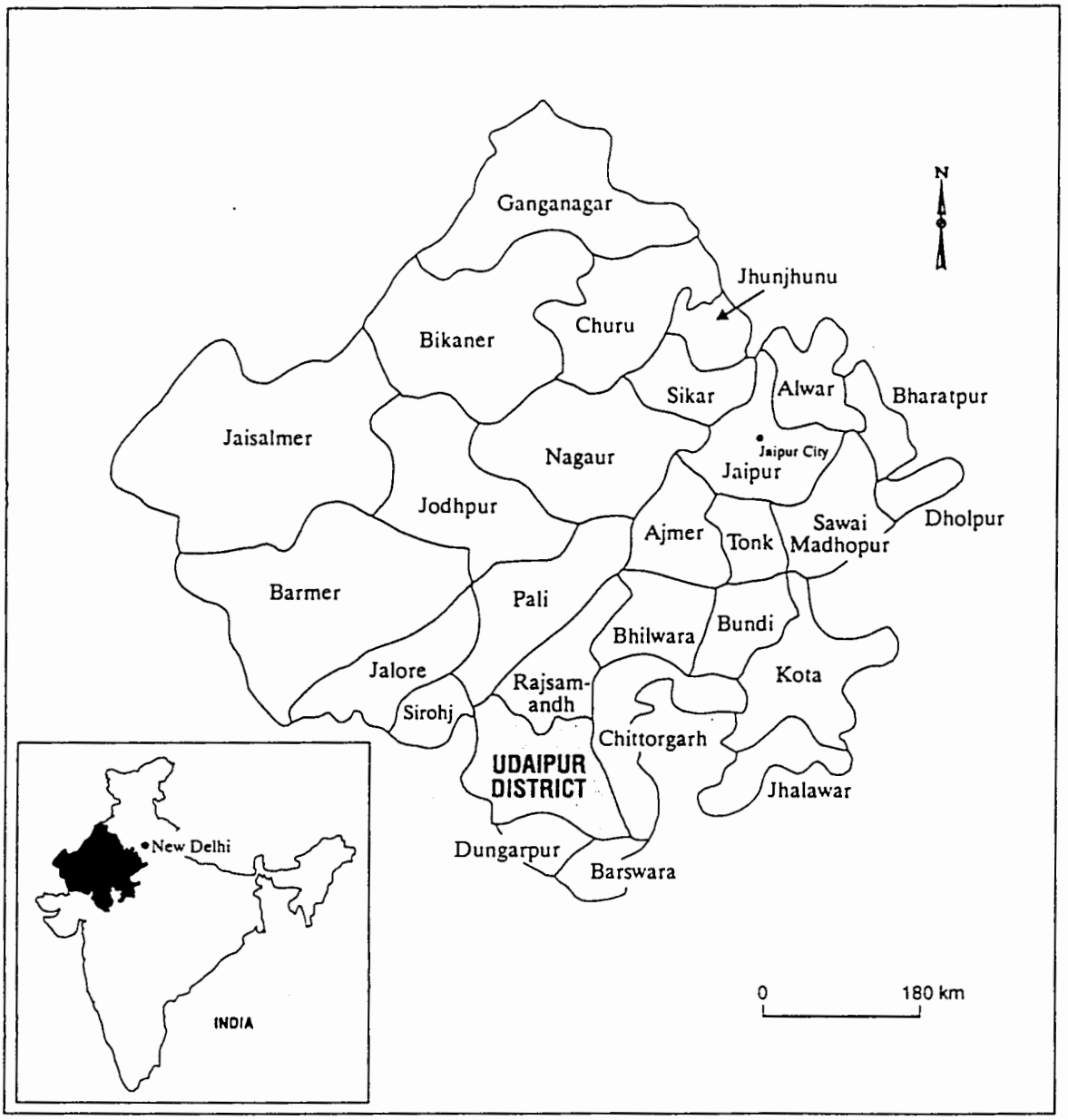
DESCRIPTION OF CURRENT NATIONAL HEALTH SYSTEM AND CIH PROGRAMMES, UDAIPUR DISTRICT, RAJASTHAN

4.1 Introduction

The programmes studied in this thesis are operating in Udaipur District, Rajasthan, India (see Figure 4.1). Udaipur District is situated in the southern part of Rajasthan and covers and area of 11,358 km^2. The District is encircled by the Aravali Ranges from north to south. The eastern part of the District has stretches of fertile plains while the central and southern parts are covered with rocks, hills and forests that were once dense. The western portion is referred to as the Hilly Tracts of Mewar composed of the Aravali Range. Four out of the six rivers that flow through the District are non-perennial and only flow during the rainy season at which time many villages are isolated.

Most of the District is constituted by the Aravali Mountain Range, with the highest point reaching 4315 feet above sea level. The temperature ranges from a low 4°C during the winter months to a high of 44°C during the summer, averaging to 25°C. Climatically, the area is classified as a tropical savanna with average rainfall accumulating to 600mm (Dutt et al. 1976:22). The soil is predominantly red or yellow (Dutt et al. 1976:20). The natural vegetation is comprised of the tropical dry deciduous type, resulting in vast numbers of small trees that are armed with sharp thorns that develop long roots (Dutt et al. 1976:22). Due to the climatic conditions and soil types, the area is suited for dry cultivation or rain fed crops.

Figure 4.1 Political map of Rajasthan State and it's district boundaries, highlighting Udaipur District.



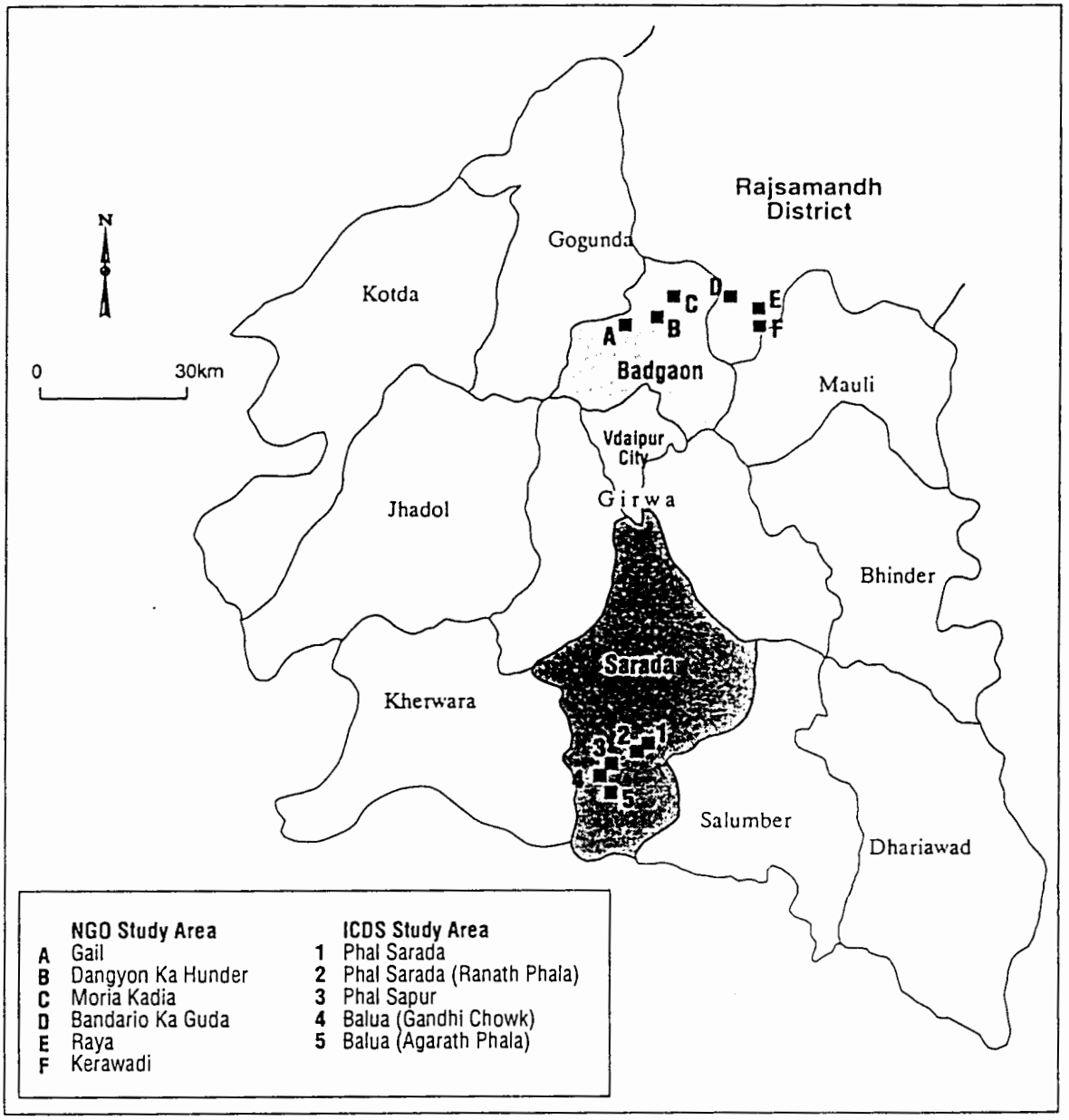
Source: Adapted from Department of Women and Child Development, Govemment of Rajasthan, Jaipur. 1991. p14.

The District is comprised of 10 Thesils or 11 Developmental Blocks with a population of 2,063,116. Nearly 65% of the District's villages have a scattered population of 25 to 500 households on hilly or rough terrain (CMHO,1993:1).

Seven of the development blocks consist of Tribals whose livelihood revolve around agriculture and day labour. The particular areas studied consist of tribal communities who are considered to be one of the poorest communities in the District (Doshi & Vyas,1992:5). They are considered poor in terms of social status, economics and accessibility to education and health services. Both programmes attempt to bridge the gap between the communities and the State Health System by operating at the local village level where the health system fails to reach.

The specific study areas selected for this thesis are located just north and south of Udaipur City (refer to Figure 4.2). Both areas are considered hilly and rocky with minimal agricultural production. The ICDS programme study area was confined to Sarada Block, approximately 60km south of Udaipur City. The five villages studied were within a 20 km radius from the town of Sarada. The NGO programme study area consisted of villages within the block of Bardgoan, north of Udaipur City. The six villages or phalas studied are spread throughout a 40 km radius. The areas selected are inhabited by the Bhils; a Scheduled Tribe.

Figure 4.2 Map of study area within the District of Udaipur



Source: Adapted from map provided by the office of the Chief Medical & Health Officer, H.Q. Udaipur. p3 of Draft. 1993.

4.2 Cultural Context

All study areas consisted of households which were of tribal caste, specifically the Bhils. The Bhils constitute the third largest tribal group of India. The concentration of Bhils in the country is found in four states; namely Maharashtra, Gujurat, Madhya Pradesh and Rajasthan. Although the Bhils are spread broadly over Rajasthan state, the majority reside in the districts of Udaipur, Banswara and Dungarpur.

The Bhils have a long history in the southern part of Rajasthan. It has been acknowledged that the Bhils were the original inhabitants of the south and south-eastern part of Rajasthan. Prior to independence (1949), the area was known as Rajputana and comprised of Rajput princely states. The Rajput kingdoms were established after defeating the Bhils (Department of Women & Child Development,1991:7).

Like most tribals, the Bhils of Udaipur District live in scattered villages, with a house erected on a small hillock in the midst of a patch of cultivated land. Each hutment consists of one or two rooms. The second room is built specifically for the cattle and/or storage of grains. The hutment is constructed by the owners with walls of stone and mud, roof of clay tiles placed on sticks and the floor made of mud. The interior is kept clean with one or two string beds. Cooking, dining, sleeping and living all occur within the single room(Doshi & Vyas,1992:45).

The village settlement pattern traditionally has been a scattered one, in which houses are spread throughout the area. Each house has fields for agriculture around them. Some Bhils reside in compact villages. Their fields are away from their habitation areas. Both these types of settlement patterns were represented in the study area (Doshi &

Vyas,1992:46) . The staple food of the region is maize. The diet consists of bread made from maize, lentils if accessible and onions in the summer (Vyas,1992:57).

The Bhil village in certain respects is different from a caste based village. The unity of the Bhil village is remarkable (Doshi & Vyas,1992:61). The Bhil family does not represent in anyway the joint system of the Hindus. When a grown up son marries, he is separated from his parents and establishes a new family in a new dwelling. The separation is complete in that the father and son do not work on the common farm but a separate piece of land is allotted to the son for his maintenance on which he operates alone. However as with the Hindus, the girl resides in the area of the husband (Chaudhary:1978:23).

The Bhils, in the past have been independent earning their livelihood from forest, forest produce and game. At a later stage the Bhils adopted a settled way of life and practised agriculture. The land being meagre and devoid of any irrigation system contributed to them being poor. The Bhils since have passed through a number of economic stages. Till very recently they were characterized by a subsistence economy. Today the Bhils by and large have taken to commercial crops. Due to diminishing land and decreasing quality of land many of the Bhils have entered the market economy in the form of day labour and small entrepreneurial work such as small tea shops. Some Bhils have managed through education to obtain professional jobs such as teaching. However, there are many Bhils who are buried in dire poverty, illiteracy and backwardness.

The Bhils at one stage or another have came into contact with Hindus, Muslims and Christians. The strongest and lasting effect on Bhils have been the Hindus where

today the two may be found living together. Although 40% speak the Bhil language of Bhili, most have taken on the local dialect of the area they reside in (a dialect of Hindi).

The problems of Bhils today are the problems of village people in general. The Bhils face the problem of accessible safe drinking water; the scarcity of cooking fuel is prevalent in which it takes up to four hours to gather the fuel from already severely depleted forest areas; and accessibility to health care facilities.

4.3 State Health System

India is a sovereign democratic republic and a union of states operating as a federal system. The Indian constitution divides the functions of the government by lists: union list, state list and concurrent list. Public health is under the State list meaning that the State is in control of the health system. Each state formulates five year plans that coincides with the central plan (Johnson & Anderson,1987:482). Rajasthan has adopted the policies and strategies of the Government of India which has been going through a decentralization in the past few decades. There is a national commitment to attain the goal of health for all by the year 2000 in accordance with the Alma-Ata Declaration of September 1978 (GOI,1988:170). Rajasthan and specifically Udaipur District is an example of how the government health system is attempting to reach the poorest of the poor.

As in most developing countries, the resources and manpower of the health system are severely strained and it is those that are most in need who are deprived of essential services. Primary health care is being provided to the rural population through

a network of sub-centres, primary health centres and community health centres. Within Udaipur district there are 14 community health centres (CHC), 71 primary health centres (PHC) and eight government dispensaries (CMHO, 1993:2). Private hospitals and centres operate within the district, however these are mostly located around the larger cities and thus are not accessible to villagers residing in the hills.

Community Health centres cover a population of 100,000. The CHC houses a Block Extension Educator, a Malaria Inspector and a Block Health Supervisor. The PHC covers a population of 30,000 or 20,000 in the in the hilly and tribal areas. Sub-centres cater to populations of 5,000 or 3,000 in the tribal or hilly areas. The primary unit of health care for villagers is the Axillary Nurse midwife (ANM) or the Multi Purpose worker (MPW) who covers an average of 5 to 8 villages.

It has been estimated that 60% of all diseases debilitating the villagers can be controlled if not eradicated through simple and effective measures that do not require medical supervision: e.g. improved sanitation. Thus it is felt by government and private organizations that the gap within the health system may be filled by community involvement. This is not to say that improvements to the health system and personnel is not warranted, to improve the overall health and nutritional status of the population efforts on all fronts must be pursued and is being pursued. An example is the recently initiated link programmes with the community by the Udaipur District Health System.

Table 4.1 Health System of Udaipur District

Community Health Centre(14) coverage to 100,000 people **staff** Compounder Block Extension Educator Malaria Inspector Block Health Supervisor 5 Medical Officers 4 nurses
Primary Health Centres(71) coverage to 30,000 (20,000) **staff** Male Supervisor Female Supervisor sanitary inspector 1 Medical Officer
Sub-Centre, Dispensaries, Aid Posts(500) 5,000 (3,000) **staff** Female Worker Male Worker
ANM/MPW 1000 (500) 5km radius

4.4 ICDS: Government Programme

The Integrated Child Development Services (ICDS) program was initiated in India during the 1970s. The programme in Udaipur District started in 1985. It was thought that the piecemeal welfare programmes of the 1950's and 1960's were not addressing the issues on a long term basis and constituted a substantial drain on the human resources of the country. The ICDS program "extends beyond the existing health and education systems to reach children and their mothers in Villages and slums and delivers to them an integrated package of services" (Sadka,1984:3), including;

- non-formal pre-school education
- immunization
- health check-ups
- supplementary nutrition
- medical referral services

- nutrition and health education
  (Sadka,1984:10)

This is accomplished at the village level by an Anganwadi (day-care) run by a local village woman (AWW) who teaches sanitary practices, plays games and teaches simple rhymes, numbers to the children, gathers the children for immunization, talks to women about family planning methods and reports any illnesses to the health officials. The AWW has an assistant who helps her with her job. The Anganwadi runs from 8:00 am to 12:00 noon Monday through Saturday. It is held in a house or some allotted building in the village. The AWW reports directly to a Lady Supervisor (LS) who in turn reports to the Child Development Project Officer (CDPO). It is the duty of the AWW to record attendance, measurements, and to distribute food to the children. The target of each centre is 80 children (Sadka,1984).

In Udaipur District 11 ICDS projects are in operation with 10 in the rural areas and one in the inner city. The 11 projects total to over 1000 Anganwadis.

4.5 NGO Initiative

Seva Mandir (SM) is an established NGO in the District originally aimed at promoting literacy and education. Today, SM has expanded to 11 units ranging from Forestry and Education to the Women's unit. The health unit was established in 1985 and has gone through many changes. It frequently reviews its strategy and role. The NGO health programme has very similar objectives to that of the ICDS programme, health education and supplementary feeding being among the most important objectives. The health Unit of Seva Mandir covers four blocks of Udaipur District with full services

offered in over 100 villages.

The health Unit of Seva Mandir is only one of many activities the organization is involved in. The main activities are as follows:

- Adult and non-formal education
- Wasteland development
- Health education and primary health care
- Women and children's development
- Watershed development
- Income generation
- People's management
- Publication and cultural promotion activities
- Rural training centre (Kaya)

Seva Mandir is a project-based organization engaged in a diverse set of activities. Its approach is integrated in the sense that each unit tries to work towards a common goal of furthering the development of the poor.

Four types of workers have been trained to carry out the health units programmes objectives (VHW, HRW, TBA, Pre-school). Health education is a common activity for all workers. After the initial training each worker is provided with medicine kits and health education programmes appropriate to his or her function.

The VHW addresses both curative and preventive health. That is, their work involves health education and treatment of illness. VHWs are required to write reports and attend monthly meetings at the village and zone levels. On average the VHW is educated up to the fifth or sixth grade. The traditional dais or TBAs have been retrained by Seva Mandir to ensure a more hygienic and educated method of child delivery. TBAs have many functions: educating mothers of the importance of immunization, hygiene, providing supplementary nutrition to pregnant mothers and discuss family planning

methods. HRW differ from VHWs in that they promote traditional remedies. Presently there are fewer HRWs than VHWs. The preschool programme is a joint programme with the Women and Child Care Unit. A woman is selected by the villagers to be trained as a Sanchalika (Pre-school teacher). The Sanchalika provides daily meals to children between the ages of two and six during the operation of the Balwadi (pre-school). Health education is taught through the poems and songs and a stress on sanitation and health checkups by the SM doctor. Minor ailments are also treated by the Sanchalika.

Seva Mandir has also recently opened a referral health centre in Kojwara. The organization is also involved with immunization camps, cleanliness campaigns and a health project in government schools.

4.6 Summary

Both the ICDS and NGO programmes attempt to the bridge the gap between the community and the primary unit of health care by operating at the village level through community involvement. Table 4.2 illustrates the placements of the ICDS and NGO staff along with those of the State Health System in terms of political levels.

Table 4.2 Spatial placements of ICDS, NGO and state health system staff.

LEVEL	ICDS	STATE HEALTH SYSTEM	NGO
National	Department of Women's Welfare	Ministry of Health and Family Welfare	-
State	Director	Director of Health Services	-
District	Program Officer	Chief Medical Health Officer (CMHO)	Central Office-Health Unit
Block	Chief Development Programme Officer (CDPO)	Community Health Centre (CHC)	Health Educator
Sector/Zone	Lady Supervisor (LS)	Primary Health Centre (PHC)	Zonal Officers
5-8 Villages	-	Auxiliary Nurse Midwife (ANM) Multi-purpose Worker (MPW)	Community Health Worker (CHW) Part-time Motivator
Village	Anganwadi* Anganwadi Worker(AW) Helper	-	Balwadi* Sanchalika Village Health Worker (VHW) Traditional Birth Attendant (TBA) Co-motivator

* these are pre-school centres operating in their respected villages

CHAPTER FIVE

METHODOLOGY

5.1 Introduction

The themes and issues surrounding CIH were discussed in the preceding chapters to provide a background to the research design, data collection techniques and analysis outlined in this chapter. Although the research was not based strictly on a quasi-experimental design, comparison of two CIH programmes was executed using a one time, cross-sectional approach. The assessment of the two programmes was based on effectiveness, efficiency and the nature of community involvement using both quantitative and qualitative techniques.

The problem statement as developed from the literature is as follows:

Problem Statement
It has been widely recognized that community involvement in health development is essential, what is lacking, however, are: (1) examples of how to effectively involve the community in improving community health; and (2) assessments of the impact of community involvement on community health.

Research Goal
The goal of this research is to examine two operational CIH programmes in terms of their effectiveness, efficiency, and extent of participation in order to demonstrate applications of CIH. The research hypothesis to be tested is: increased participation will produce a more effective and efficient community health programme.

Research Objectives
1) To determine the effectiveness of an NGO and Government based participatory health and nutrition program

2) To determine the financial cost of an NGO and a Government based participatory programme. This will indicate the efficiency of both programmes.

3) To identify the characteristics of the NGO and Government based participatory health programmes.

The purpose of the research was to evaluate two programmes in operation in order to examine how the community is involved in health development and to determine the effectiveness and efficiency of the health programme. The field research was conducted from February 1993 to July 1993 in Udaipur District, Rajasthan, India. The time period covers partially the winter season and the complete summer season.

Table 5.1 summarizes the research issues and techniques used to carry out the study. A more detailed description of data collection and analysis follows in section 5.2.

Table 5.1 Research questions and techniques used for study.

Research Objectives	Indicators	Questions	Sub-questions	Analysis Techniques	Data Collection Techniques
1. Effectiveness	Nutritional status of children	Is there a difference in the nutritional status of children participating in the ICDS health programme and those participating in the NGO programme?	Is there a significant difference in mean nutritional Z-scores of children participating in the ICDS programme and those participating in the NGO health programmes?	statistical differences (t-test) in height-for-age, weight-for-age, weight-for-height and arm-circumference Z-scores for children between the ages of one and five (sample taken from ICDS and NGO health programme participants)- using ANTHRO and SPSS	anthropometric measurements
			Is there a difference in the prevalence of undernourished and stunted children found in the ICDS and the NGO sample population?	comparison of ICDS and NGO children falling below -2.00 Z-scores. ANTHRO and SPSS	household survey, interviews with ANM and MPW
			What are the socio-economic indicators that correlate with nutritional status Z-scores?	pearson correlation for continuous variables and the Mann U-Whitney test for nominal variables. SPSS	household survey
			How much of the variance in nutritional status Z-scores can be attributed to the health programmes?	stepwise forward multiple regression using nutritional status Z-scores as the dependent variable, and socio-economic and programme variables as the independent variables. SPSS	household survey
	IMR and CMR of the ICDS and NGO sample populations	Is there a difference in the IMR and CMR of the sample population participating in the ICDS programme and those participating in the NGO programme?		of the sample population surveyed, divide the number of deaths (up to age 1 for IMR and up to age 5 for CMR) by the number of children everborn	household survey, interviews with programme staff, group discussions

	Percentage of children and pregnant mothers immunized within the ICDS and NGO sample population	Is there a difference in the percentage of children and pregnant mothers immunized in the ICDS programme and those in the NGO health programme?		number of children (and pregnant mothers) immunized in the sample population divided by those that were not	household survey, interviews with programmes staff, group discussion
	Percentage of couples using family planning methods	Is there a difference in the family planning number and methods used by participants in the ICDS health programme and those by the NGO health programme?		record the type of family planning method used from sample populations	household survey, interviews with ANM and MPW
2. Efficiency	comparison of social cost-benefits of each programme	What are the difference between the ICDS and NGO health programmes in terms of costs?	What are the technical costs (staff time, staff numbers) associated with the ICDS and NGO health programmes?	comparison of estimated costs	ICDS and NGO reports, interviews with programme staff, participant observation
			What are the financial costs associated with the ICDS and NGO health programmes?	comparison of estimate budget	
		What are the benefits in comparison of the costs for both the ICDS and NGO programmes?	Using and adapted GAM, description of the costs incurred for the benefits gained	comparison of GAM	
3. Characteristics of community involvement	extent and type of community involvement	What is the difference in the breadth (extent) of community involvement?		Using an adapted version of Shrimpton's model rank the breadth of community involvement for both the ICDS and NGO health programmes	ICDS and NGO reports, interviews, group discussions, participant observation
		What is the difference in the form of community involvement between the ICDS and NGO health programmes?		Using the World Banks model of type of involvement, assess the form of participation for both the ICDS and NGO health programmes.	

5.2 Data Collection Techniques

The data collected for analysis was obtained primarily from six methods:

1) secondary data collection;

2) household survey;

3) semi-structured interviews with ICDS and NGO programme staff, doctors, nurses and community workers;

4) anthropometric measurements (height, weight, arm-circumference) of children ages one to five participating in the CIH programmes;

5) group discussions with villagers, programme staff workers and doctors; and

6) participant observation.

Each of these methods is discussed in greater detail below.

5.2.1 Secondary Data Collection

Prior to field work, an assessment of health and nutrition programmes was completed. The information for this was obtained by various health and nutrition documents and papers pertaining to CIH. This was further carried out in Udaipur by reviewing census data and ICDS and NGO produced documents.

Reports produced by the ICDS and NGO programmes obtained in Udaipur were used to describe the structure of the programmes and the financial cost of operating the programmes.

5.2.2 Semi-structured Interviews

Qualitative information on perception and description of community involvement characteristics was obtained by interviews with villagers, programme staff and health system officials. The results of these three sets of interviews were compared as part of an evaluation of programme efficiency and effectiveness objectives. Information on the Udaipur District health system was also partly obtained by interviews with the persons mentioned above. The interviews were recorded on paper by the researcher.

Table 5.2 Number and profile of semi-structured interviews.

INTERVIEWEE	N	LOCATION
ICDS Staff		
CDPO	1	Sarada Block Office, Sarada
LS	2	Udaipur City
AWW	5	Balua, Balua, Phal Sapur, Phal Sarada, Phal Sarada
Sub total	8	
NGO Staff		
General Secretary	1	Central Office Udaipur
Central Office Health Unit Staff	5	Central Office Udaipur
Health Educator	1	Bardgoan Block Office
Zonal Officers	4	Dhelwara, Madar, Bandaron ka Guda
CHW	2	Gail, Raya
Sub total	11	
Government Health System Staff		
Deputy CMHO	1	Udaipur City
ANM/MPW	8	Sarada CHC, Jhadol PHC, Lossing D, Dhelwara PHC,
Sub total	9	Madar, Dhelwara, Sarada,
Total	29	

5.2.3 Focus Group Discussions

Focus group discussions with community members of both the ICDS and NGO programmes were impromptu in nature and provided information pertaining to characteristics of community involvement and perception of the health and nutritional status of the community. The group discussions were recorded in written form by the researcher and the assistant.

Table 5.3 Source of group discussions.

GROUP	N	LOCATION
ICDS 5 communities	In each community a range of 4 to 6 men and women were present. A separate discussion was held with the AWW and assistant.	Balua (Gandhi Chowk), Balua (Agarath Phala), Phal Sapur, Phal Sarada (Ranath Phala), Phal Sarada
NGO 6 communities	In each community a range of 4 to 6 men and women were present. A separate discussion was held with the VHW, Sanchalika and TBA.	Gail, Dangyon ka Hunder, Moria Kadia, Bandaron ka Guda, Raya, Kerawadi
Health System Medical officers	A group of 5 doctors that specialized in various aspects of health care.	Jhadol (S) Community Health Centre

5.2.4 Household Survey

The information collected during the household survey provided data pertaining to the effectiveness objective of this thesis. A sample of this survey is shown in Appendix A. This survey looked at factors that influence nutritional status, specifically economic resources such as income and occupation, household composition, education, and ethnic membership (Pelto,P:1989:49-51). The surveys were administered by the researcher and assistant. The survey was conducted during the early mornings or late evenings at the houses of children aged one to five who attended the Anganwadi or Balwadi. The surveyor and respondent communicated using Hindi (Indian language) in combination with local dialect. The survey responses were written by the surveyor in English or Hindi (Indian Language).

5.2.5 Anthropometric Measurements

To determine the nutritional status of children, anthropometric measurements of height, weight and arm circumference were used in combination with age and sex of children between the ages of one and five. The measurements were taken during the morning sessions of the Anganwadi or Balwadi, the time when the children were present.

The classification of the data was by sex and age. If a birth certificate was not readily available and the exact date of birth was not known to the parent, the birth date was determined by using local festival or seasonal time periods. The anthropometric measurements were taken by the researcher and the assistant using a suspended scale and a weighing sling for recording weight for children under two and a spring balance scale for the older children. The weight was calculated to 0.5 kg with 0.5 kg deducted for clothing worn by the children. Recumbent length was recorded using a measuring board for children under two and by a portable stadiometer for children greater than two. Mid-upper-arm circumference was recorded on the left upper arm of the child using a plastic circumference tape.

Intra-measurement error was minimized by conducting trial measurements on a given subject. Repeated recording of measurements (height, weight, recumbent length and arm circumference) on a volunteer by both the researcher and the research assistant ensured the accuracy and precision of the measurement taken in the field. Inter-measurement error was minimized by training the research assistant in recording and performing anthropometric measurements.

5.2.6 Participant Observation

Participant observation was utilized throughout the field study in order to collect information pertinent to all of the objectives. Participant observation data was recorded daily in written form by the researcher. Table 5.4, highlights the activities observed by the researcher.

Table 5.4 Primary places and sessions attended for participant observation.

AREAS OBSERVED	LOCATION
ICDS Programme	
Stayed in all 5 study villages	Balua (Gandhi Chowk), Balua (Agarath Phala), Phal Sapur, Phal Sarada (Ranath Phala), Phal Sarada
Attended Sector Meeting	Sarada
NGO Programme	
Stayed in all 6 study villages	Gail, Dangyon ka Hunder, Moria Kadia, Bandaron ka Guda, Raya, Kerawadi
Attended Health Unit meeting	Udaipur City (HQ)
Attended Block Meeting	Badgaon Block Office
Attended village meeting	Gail, Dangyon ka Hunder, Kerawadi
Attended TBA training	Udaipur City
Attended VHW Training	Kaya Training Centre

5.3 Sample selection

The sample frame from which the sample population was selected was within the District of Udaipur where the ICDS and NGO health programmes operated. Although the ICDS programme functions throughout the state of Rajasthan and indeed all of India, the sample population was restricted to project areas within Udaipur District in order to minimize the variables that may influence the outcome. The area selected was limited to those of the Tribal population and in fact those of the same tribal caste, the Bhils. This was done for primarily two reasons: 1) the tribal caste represents one of the poorest

populations within the district in terms of education, economic situation and accessibility to health services; and 2) limiting the selection to one type of caste reduces the variability in food and social habits which may influence the outcome.

Great care was taken in selecting of the sample population to ensure that the villages selected had very similar lifestyles: livelihood consisting of agriculture and day labour; similar eating habits, interior location and similar economic potential.

All sample populations from the ICDS programme were selected from Sarada Block south of the Udaipur city. Five villages or phalas were used in this area. Six villages or phalas were used from Badgaon Block as sample population for the NGO programme. It should be noted that additional interviews were taken from persons outside these respected Blocks to gather more insight on the programmes being evaluated.

5.4 Sample Size

The sample size suggested for determining nutritional status of a population is 75 - 100 children from each of the two programmes (Pelto,P:1989:46). Eighty-three children between the ages of one and five were measured in the ICDS programme and 76 children from the NGO programme. The same numbers respectively constituted the number of household surveys in each programme.

5.5 Analytical Methods

This section will outline the analytical procedures that were followed to examine the objectives outlined. The data collected was through survey questionnaires filled out

by the researcher and assistants, interviews, group discussion and participant observation. The closed questions in the household survey were coded and entered on a LOTUS 123 template (refer to Appendix B for code book). The data was then analyzed using the SPSS software on a personal computer. The anthropometric measurements were analyzed using the ANTHRO software package then appended to the LOTUS 123 template for further analysis using the SPSS software. The analysis of effectiveness consisted of descriptive statistics, bivariate analysis and multivariate analysis.

5.5.1 Effectiveness

To have an understanding of the households existing in both the ICDS and NGO programmes, descriptive univariate statistics were performed on all variables. The means and standard deviations were calculated for all continuous variables and the frequency and percentage occurrence of each level of the categorial variables were calculated. The preliminary findings were followed by the collapsing of some categorical variables. This was done if there were too few cases in any level in that category.

The bivariate statistics, through correlations and associations were analyzed. The student's T-test, the chi square test and the pearson correlation were used to determine association and independence between the variables of the ICDS and NGO programmes.

The anthropometric measurements taken included weight, height and arm circumference of children between the ages of one and five. These specific measurements were recorded in order to establish the indices of height-for-age, weight-for-age, weight-for-height and arm circumference-for-age. Weight-for-height is a sensitive index of

present nutritional status (wasting) and height-for-age infers past nutritional status (stunting) (WHO,1986:931). Mid-upper-arm circumference assesses fat-free mass and thus will be used to predict total body muscle mass and hence protein nutritional status (Gibson,1990:200).

The anthropometric data was analyzed using the ANTHRO software package which is based on the United States National Centre for Health Statistics reference data set (NCHS). This included the use of Z-scores (standard deviation from the mean) which is recommended for analysis of children in developing countries (Waterlow et al.,1977:493). Arm circumference data was compared to the reference data set of the NHANES 1 study compiled by the NCHS. The data set has sex, age and race specific percentiles, means and standard deviations for mid-upper arm circumference for children (Gibson,1990:237).

As outlined previously, the indices were then appended to the LOTUS template for further bivariate and multivariate analysis. A student T-test was used for continuous variables and chi sq. sig. was used for categorical variables to explore the possibilities of significant differences between the nutrition indices and other variables of the ICDS sample population and the NGO population. Pearson's correlation and the Mann-Whitney U test were used to assess the associations between the nutritional indices and socio-economic variables. Linear regression (multivariate analysis) was used to analyze the variables that influence the nutritional indices with both programmes combined. Participant observation, semi-structured interviews and group discussions were used as perception of nutritional status and for triangulation.

The infant and child mortality rates were estimated by dividing the total number of births by the total number of deaths. The estimated infant and child mortality rates of the ICDS programme sample was compared to that of the NGO programme sample. Perception of IMR and CMR of each programme was elicited by doctors and nurses working in the area, programme staff, community members and health officials.

This issue was explored using percentage frequency and the student T-test obtained from data collected from the household survey. Perception of child and mother immunization rates of the ICDS and NGO sample population was elicited from doctors and nurses working in the area, programme staff, community members and health officials.

The data obtained from the household survey was used for a chi-square test to answer this issue with verification and perception measured from discussions with doctors and nurses working in the area, programme staff, community members and health officials.

5.5.2 Efficiency

Efficiency was evaluated for data obtained from reports written by the ICDS and NGO programmes. Recurring annual cost per village was estimated from this information. The framework described previously for determining technical and financial costs was used.

5.5.3 Community Involvement

To assess the breadth of participation the modified Rifkin's framework was used (Shrimpton, 1989) (refer to Table 3.2). To assess the type of participation Paul's framework was used as described by the World Bank. For both these questions data was collected from reports, group discussions, interviews and participant observation.

5.6 Summary

The methodology used for this study combined quantitative and qualitative techniques. Triangulation was stressed within the methodology in order to verify immunized children and mothers, the methods of family planning and overall perception of programme effectiveness, efficiency and community involvement.

PART II: STUDY RESULTS & DISCUSSION

CHAPTER SIX

SOCIO-ECONOMIC DIFFERENCES BETWEEN THE ICDS AND NGO SAMPLE POPULATIONS

6.1 Introduction

This chapter describes the study areas selected for both the ICDS and NGO programmes using the variables obtained from the household survey. The descriptions include the differences observed between the two programme areas.

6.2 Differences Between the ICDS and NGO Programme Areas

The household survey was answered by more female than male heads of households in both the ICDS and NGO communities (77.1% and 66.7% respectively). Children were not present during most of the survey for both the ICDS and NGO communities (36.1% and 24.4% respectively). There was however, a significant difference between the ICDS and NGO community in terms of neighbours present and an ICDS or NGO staff member present during the household survey. Neighbours and workers were present more so during the ICDS survey (chi sq. sig. at 0.01 level).

Table 6.1 Frequencies and percentage of persons present during time of household survey conducted in the ICDS and NGO study areas.

PERSONS PRESENT DURING SURVEY		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO	Chi Sq. Sig
Male head present during survey	yes	50	40	60.2	51.3	0.97
	no	33	38	39.8	48.7	
Female head present during survey	yes	64	52	77.1	66.7	1.69
	no	19	26	22.9	33.3	
Children present during survey	yes	30	19	36.1	24.4	2.11
	no	53	59	63.9	75.6	
Neighbours present during survey	yes	4	18	4.8	23.1	9.87**
	no	79	60	95.2	76.9	
Worker of NGO or ICDS present during survey	yes	62	24	74.7	30.8	29.44**
	no	21	54	25.3	69.2	

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

6.2.2 Survey Population Household Characteristics

Approximately two thirds of the survey was answered by nuclear families in both the ICDS and NGO villages. The rest of the households consisted of joint families and a few extended families. Almost all households participating in the survey were Scheduled Tribes, with the exception of one family in the ICDS villages being a Scheduled caste member and three of the NGO households being of a general caste. This reflects data compiled by other researchers where in Udaipur District, the Bhils reported nuclear families accounting for approximately 70% of the households (Chaudhary:1978:43).

Table 6.2 Family type and caste of ICDS and NGO study areas.

Household Characteristics		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO
Type of family	nuclear	53	58	63.9	74.4
	joint	26	15	31.3	19.2
	extended	4	4	4.8	5.1
	other	0	1	0	1.3
Caste	Scheduled caste	1	0	1.2	0
	Scheduled tribe	82	75	98.8	98.7
	General	0	3	0	1.3

*p≤0.05; **p≤0.01; ***p≤0.001

The ICDS villages had significantly more people per household than the NGO villages. The mean for the ICDS villages was 6.8 people per household while the NGO villages had a mean of 5.6. Other data shows that the majority of households (48%) have a medium sized families containing four to six members (Chaudhary,1978:42). A significant difference was also seen in terms of number of children per household. The ICDS villages had an average of 4.1, while the NGO had 3.1 children per household. The mean age of the father and mother for the ICDS villages was significantly higher than the NGO villages, which may contribute to the greater number of children.

Table 6.3 Household Characteristics of survey populations in ICDS and NGO study areas.

Household Characteristics	ICDS n	ICDS mean	ICDS +/- SD	NGO n	NGO mean	NGO +/- SD	t
No. of persons in household	83	6.8	1.73	78	5.6	1.82	4.20***
No. of children in household	83	4.1	1.70	78	3.1	1.43	4.16***
Age (male head)	80	33.6	6.54	78	30.7	5.67	2.97**
Age (female head)	82	29.1	5.62	78	26.2	4.94	3.46**

*p≤0.05; **p≤0.01; ***p≤0.001

Education levels were minimal for male and female heads of household, however the male mean head of household averaged more years of education than the females. The number of years of education for males was 1.75 and 1.37 years respectively for the ICDS and NGO villages. These figures were considerably lower than the India average of 3.5 years of schooling for males (UNDP,1990:145). The ICDS and NGO sample populations recorded a much lower average for years of schooling for females than the India average of 1.2 years. (refer to Table 6.4)

Table 6.4 Education levels of male and female heads of households of survey populations in ICDS and NGO study areas.

Years of Education	ICDS			NGO			
	n	mean	+/- SD	n	mean	+/- SD	t
Education - male (yrs)	80	1.75	3.03	78	1.37	2.38	0.87
Education - female (yrs)	82	0.12	0.78	78	0.24	1.24	0.74

*p≤0.05; **p≤0.01; ***p≤0.001

There were no significant differences found between the two survey populations in terms of literacy. The numbers tabulated reflect the 1991 census data which indicates that very low percentage of rural populations are literate and even fewer females are (GOI,1991).

Table 6.5 Frequency and percentage of literate males and females in the ICDS and NGO study populations.

Literate	Value	Frequency		Percentage		Chi Sq. Sig.
		ICDS	NGO	ICDS	NGO	
Father literate	yes	26	28	32.5	35.9	0.08
	no	54	50	67.5	64.1	
Mother literate	yes	2	6	2.4	7.7	1.35
	no	80	72	97.6	92.3	

*p≤0.05; **p≤0.01; ***p≤0.001

Income and income proxies were used to determine the economic status of households. The NGO male head of household earned significantly more (787.82 Rp.per month approximately $32 Canadian) than the ICDS male head of house hold (599.37 Rp.

per month approximately $24 Canadian per month)[5]. If one examined total family income, there was no significant difference found between the ICDS and NGO sample populations. In both areas, most of the income was earned through day labour followed by government office or clerical related service. Income derived strictly from labour was significantly higher for the NGO area. Gross income in the form of cash, is earned during eight months of the year, the remaining months reserved for agricultural production. The ICDS community on average owns significantly more livestock as indicated by the increase in livestock units.

Table 6.6 Income levels of households in the ICDS and NGO study areas.

Income Levels	ICDS			NGO			t
	n	mean	+/- SD	n	mean	+/- SD	
Income - male	80	599.37	547.37	78	787.82	468.08	2.33*
Income - female	82	26.22	88.18	78	19.23	55.38	0.60
Income total	83	724.70	585.76	78	895.26	527.97	1.94
Income per capita from total	83	111.56	85.68	78	171.05	109.22	-3.83***

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

The possessions of certain items were surveyed as an income proxy. A bicycle was reported in the homes of 26.5% of ICDS families and 61.5% of NGO families. Radios were in 12% of ICDS families, while 26.9% of NGO families possessed radios. Both these items showed a significant difference between the two areas.

[5] At the time of field study, one Canadian dollar was approximately equal to 25 Rupees.

Table 6.7 Possession of certain household items by the ICDS and NGO survey population.

Income proxy		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO	Chi Sq. Sig.
Possession of radio	yes	10	21	12	26.9	4.80*
	no	73	57	88	73.1	
Possession of bicycle	yes	22	48	26.5	61.5	18.68***
	no	61	30	73.5	38.5	
Possession of television	yes	1	0	1.2	0	.00
	no	82	78	98.8	100	
Possession of tractor	yes	1	0	1.2	0	.00
	no	82	78	98.8	100	
Possession of motorbike	yes	6	3	7.2	3.8	.35
	no	77	75	92.8	96.2	

*p≤0.05; **p≤0.01; ***p≤0.001

There was no significant difference found between the ICDS and NGO villages with respect to amount of corn, wheat and other grains harvested, however the number of livestock (as calculated by livestock units) owned by the ICDS population was found to be significantly greater.

Table 6.8 Agricultural data reported by the ICDS and NGO study populations.

Agricultural Data	ICDS n	ICDS mean	ICDS +/-SD	NGO n	NGO mean	NGO +/SD	t
Livestock units	83	2.87	1.79	78	2.06	1.36	3.21**
Total land owned	83	4.15	4.20	78	4.42	3.93	0.42
Cultivated land	83	2.85	2.44	78	2.57	1.85	0.82
Boras of Corn Harvested/yr	83	2.49	1.54	78	2.93	1.67	1.70
Boras of Wheat Harvested/yr	83	1.94	1.80	78	2.07	1.93	.43
Extra grains Harvested /yr	83	0.73	2.61	78	0.29	0.69	1.46

*p≤0.05; **p≤0.01; ***p≤0.001

Houses were owned by 100% of the families in the ICDS community and 97.4% of the NGO community. There was however a significant difference found in the number of rooms in a house, with the ICDS community averaging 1.58 rooms and the NGO community averaging 1.12 rooms per house. The kitchen was separated more in

ICDS households than NGO households. There was no significant difference found between the ICDS and NGO households in terms of type of roof, wall, or floor. Almost all households used sticks and shingles for roofs, stones and mud for walls and mud for floors.

A significant difference was seen with respect to electricity in the households. Forty-one percent of NGO households had electricity in their houses while only 3.6% of ICDS households had electricity. Of the households that had electricity available, the majority used it for a single bulb.

Table 6.9 House/land characteristics reported by the ICDS and NGO sample populations.

House/Land Characteristics		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO	Chi Sq. Sig.
Status of house	rented	0	2	0	2.6	.57
	owned	83	76	100	97.4	
Type of roof	sticks and shingles	80	75	96.4	96.2	3.01
	cement	3	1	3.6	1.3	
	stones and lime	0	2	0	2.6	
Type of wall	mud	0	1	0	1.3	2.68
	stones	0	1	0	1.3	
	stones and mud	79	74	95.2	94.9	
	bricks with cement	4	2	4.8	2.6	
Type of floor	mud	81	78	97.6	100	.44
	cement	2	0	2.4	0	
Electricity in the house	yes	3	32	3.6	41	30.92***
	no	80	46	96.4	59	
Land	owned	80	75	98.8	96.2	.30
	rented	1	3	1.2	3.8	

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

Reported sources of drinking water and non-drinking water were identical in both the ICDS and NGO sample populations. It was reported that 62.7% of ICDS households obtained water from communal handpumps and 33% of NGO households obtained water from communal handpumps. Seventy-five percent of Indian households have access to

safe drinking water (UNDP,1993:137). More NGO households obtained water from open wells with stairs than the ICDS households. While all households in both areas strained the drinking water, 96.4% of the ICDS households used a plastic funnel distributed by UNICEF, and 100% of NGO households used a double cheesecloth. How households take water out of the "matka" was found to be significantly different between the ICDS households and the NGO households. Ninety-three percent of the ICDS households used a "lota" (glass) while 64.1% of NGO households use a "danda wallah lota" (glass with a long handle).

Table 6.10 Cooking, Drinking and medical characteristics reported by the ICDS and NGO survey populations.

Cooking, Drinking, Medical Measurements		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO	Chi Sq. Sig.
Type of stove	Chula	81	76	97.6	97.4	.00
	Chula and gas	2	2	2.4	2.6	
Ventilation	window	3	0	3.6	0	7.19
	proper roof	72	71	86.7	91	
	stove outside	0	3	0	3.8	
	window &proper roof	8	4	9.6	5.1	
Drinking water obtained from	handpump	52	25	62.6	32.0	13.89***
	well	31	53	37.3	67.9	
If well, what type	stair	7	32	22.6	60.4	9.77**
	rope	24	21	77.4	39.6	
Drinking water kept	matka	83	78	100	100	can not do
Do you strain the drinking water	yes	83	78	100	100	can not do
Water is strained through	plastic filter	80	0	96.4	0	145.60***
	double cheese cloth	3	78	3.6	100	
What do you use to take out water from the matka	lota	77	28	92.8	35.9	54.86***
	lota with handle	6	50	7.2	64.1	
Does anyone add medicine to the water	yes	35	21	42.2	26.9	3.47
	no	48	57	57.8	73.1	
Where does your family defecate	personal latrine	2	5	2.4	6.4	.73
	field	81	73	97.6	93.6	

*p≤0.05; **p≤0.01; ***p≤0.001

No significant difference was found in the number of people who smoke between

the ICDS and NGO households. With 60.2% and 60.3% of someone smoking in the ICDS and NGO households respectively. An average of 0.59 and 0.63 packages of cigarettes were smoked by the ICDS and NGO households respectively. A lower percentage of persons in households reported drinking alcohol, with 12% of ICDS households and 9% of NGO households. Most households in the ICDS and NGO sample populations brushed their teeth with powder/paste or neem[6]. Approximately half the households in both sample populations used soap for bathing. More ICDS households used a blade to cut fingernails (84.3%) than NGO households (60.3%). The NGO households used more nail cutters and scissors (0.01 significance).

Table 6.11 Health characteristics reported by the ICDS and NGO study populations.

Health Data		Frequency ICDS	Frequency NGO	Percentage ICDS	Percentage NGO	Chi Sq. Sig
Does anyone in the household smoke	yes	50	47	60.2	60.3	.00
	no	33	31	39.8	39.7	
Does anyone in household drink alcohol	yes	10	7	12	9	.14
	no	73	71	88	91	
What do they use to brush their teeth with	brush/powder/paste	7	14	8.4	17.9	2.42
	neem/rock	76	64	91.6	82.1	
What do they use to bathe with	soap	40	45	48.2	57.7	3.54
	water only	15	17	18.1	21.8	
	sometimes soap	28	16	33.7	20.5	
What do they use to cut the nails with	blade, knife	76	55	91.6	70.5	10.41**
	scissors, nail-cutter	7	23	8.4	29.5	

$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

6.3 Summary and Discussion

Similarities between the selected ICDS and NGO study areas was noted in terms of livelihood and culture. The differences brought out by the household survey show that

[6] The twig off a neem tree has antibacterial effects, and thus when chewed acts as a substitute for brushing (Research Foundation for Science, Technology and Natural Resource Policy,1993:3).

the average age of the ICDS population is older which may explain the increase in family size. The NGO community is younger and tend have fewer children. The average years of education earned by the male head of household is minimal and even worse for female head of household, indicating the continuing literacy problem facing tribals in Rajasthan. However, three-times as many females are literate in the NGO sample population as compared to the ICDS sample population most probably due to the NGOs drive for adult literacy.

Gross income per capita, is significantly higher for the NGO sample population. The greater income of the NGO population may explain the increase in possessions such as radios and bicycles. Although families of the ICDS population have less income, they own significantly more livestock. The land cultivated by the ICDS households, is slightly greater than that cultivated by the NGO households.

The difference found in source of drinking water and type of filter system used is due to a campaign by SWACH. This campaign was initiated due to the outbreak of guinea worm infestation in parts of Udaipur District. The campaign involved educating households to the use of filters donated by the UNICEF project and the closing of stair wells. Thus very few stair wells are left in the ICDS study areas, mostly being converted to handpumps and virtually all households use the plastic filter. The NGO study area, on the other hand, has not been the target of the SWACH project, and thus have not had the advantage of handpumps being constructed. The NGO has provided cheese cloth to be used as filters for the households participating in the health programme as filters. The NGO has also stressed the use of handled glasses to take out the drinking water from the

"matka" and thus an increase in use in the NGO study areas was evident.

A significant difference was found in terms of where households seek consultation on health matters. While all ICDS households rely on the nearest PHC, 65% of NGO households approach the VHW in their area. This difference may be attributed to the fact that the ICDS project in Sarada does not dispense any medicine. This is an exception in the ICDS pro gramme, where most AWW do treat minor ailments.

CHAPTER SEVEN

ASSESSMENT OF THE EFFECTIVENESS OF THE ICDS AND NGO HEALTH PROGRAMMES

7.1 Introduction

The findings resulting from the effectiveness analysis are presented in this chapter. Programme effectiveness, as measured by nutritional status, infant and under five mortality rates, percentage of children and pregnant mothers immunized, and use of family planning methods, are discussed in terms of both the quantitative and qualitative methods utilized in the research.

7.2 Nutritional Status

Nutritional status of children is regarded as an indicator of health and is used to assess the effectiveness and/or impact of health and nutrition programmes. The objective of anthropometric assessment is to provide an estimate of the prevalence of malnutrition in a given population. This section examines the raw anthropometric measurements collected of children participating in the ICDS and NGO programmes, followed by the assessment of their nutritional status using standardized Z-scores. The Z-scores when assessed using the NCHS reference data set, help to determine the prevalence of malnutrition within each programme. Factors that influence nutritional status were examined using correlations and the percentage of variation explained by the type of programme was analyzed using multiple linear regression.

7.2.1 Comparison of Growth Status

By examining the raw anthropometric data collected of children between the ages of one and five, it is evident that the children of the ICDS programme were slightly taller, heavier and on average had a greater arm circumference than those of the NGO programme (refer to Table 7.1).

Table 7.1 Growth status of children from ICDS and NGO sample population.

AGE GROUPS	n	Height(cm) mean ± SD	Weight(kg) mean ± SD	Arm Circumference(cm) mean ± SD
ICDS				
12.0-23.9	3	73.33 ± 7.06	7.23 ± 0.86	13.28 ± 0.17
24.0-35.9	11	79.76 ± 3.56	8.14 ± 1.05	13.22 ± 0.76
36.0-47.9	22	89.60 ± 5.27	10.47 ± 1.54	13.08 ± 0.71
48.0-59.9	28	94.85 ± 6.34	11.35 ± 1.30	13.39 ± 0.84
60.0-71.9	19	104.70 ± 4.40	13.83 ± 1.37	13.97 ± 0.84
TOTAL	83	92.94 ± 10.05	11.11 ± 2.30	13.41 ± 0.83
NGO				
12.0-23.9	3	72.73 ± 1.62	7.80 ± 0.84	13.40 ± 0.56
24.0-35.9	8	77.33 ± 3.26	7.96 ± 1.13	12.59 ± 1.07
36.0-47.9	32	85.94 ± 3.57	10.06 ± 1.14	13.22 ± 0.62
48.0-59.9	13	91.04 ± 6.35	10.85 ± 2.05	13.26 ± 0.79
60.0-71.9	22	103.9 ± 7.88	13.34 ± 2.45	13.69 ± 0.78
TOTAL	78	90.26 ± 10.69	10.81 ± 2.50	13.30 ± 0.79

Even when stratified by age, the average height and weight were greater for the ICDS children. There are however, two exceptions: 1) the first year of life, where infants of the NGO sample weighed approximately two pounds more than the ICDS infants; and 2) in the arm circumference data where the average arm circumference of children with age cohorts 12.0 - 23.9 and 36.0 - 47.9 months were greater in the NGO sample

population than that of the ICDS programme. It is also apparent that while height and weight increase as age increases, mid-arm circumference tends to fluctuate. This is seen in children participating in both the ICDS and NGO programmes.

7.2.2 Bivariate Analysis of Nutritional Status

The raw anthropometric measurements were standardized as Z-scores using the NCHS data set as a reference. The calculated Z-scores, height-for-age, weight-for-age, weight-for-height and arm circumference for each child, revealed that there was a significant difference found between the nutritional status of the ICDS children and that of the NGO children population in terms of height-for-age (Table 7.2). The mean score for the ICDS children was -1.69 compared to -2.23 for the NGO children. Growth stunting (height-for-age Z-score $\leq$ -2.00) was prevalent with NGO children. There was, however, no significant difference found for the indicator weight-for-height, the indication of present nutritional status or wasting. The other two indices, weight-for-age and mid-arm circumference, recognized as measures of protein energy malnutrition (PEM), were not significantly different either. It must be emphasized that three out of the four indices are substantially lower than the NCHS norms; one falling a complete three standard deviations below, indicating a malnourished population especially in terms of wasting and protein energy malnutrition.

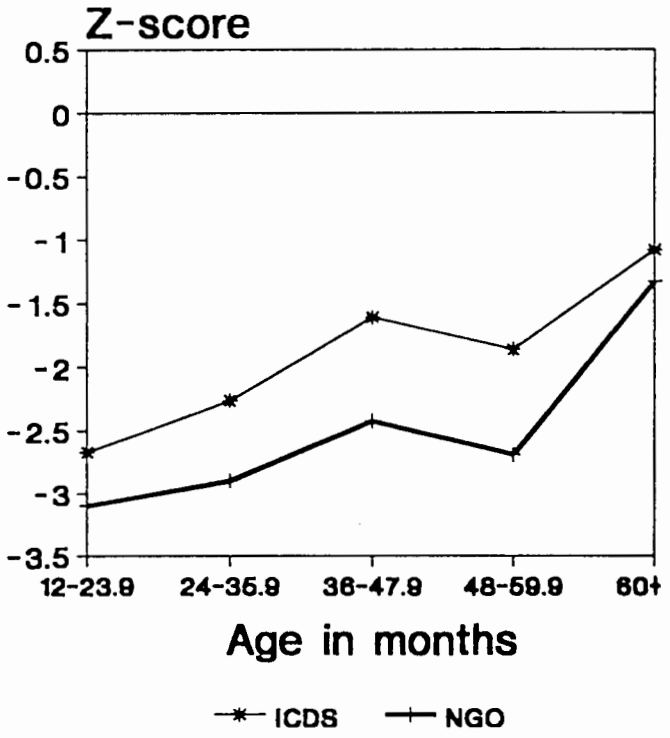
Table 7.2 Comparison of mean Z-scores of height-for-age, weight-for-age, weight-for-height and mid arm circumference for children between the ages of one and five participating in the ICDS and NGO programmes.

MEASURE	ICDS			NGO			
	n	mean	SD	n	mean	SD	t-sig
Height-for-age	83	-1.6969	1.329	78	-2.2317	1.324	2.56*
Weight-for-age	83	-2.8864	0.917	78	-3.0851	0.897	1.39
Weight-for-height	83	-2.4771	0.800	78	-2.4315	0.905	0.34
Mid arm circumference	83	-2.7302	0.746	78	-2.8429	.630	1.04

*$p \leq 0.05$

When graphed by age, the Z-score height-for-age is shown to have similar patterns for both the ICDS and NGO populations with the ICDS figures maintaining a greater Z-score for all age cohorts (Figure 7.1). A steady increase in height-for-age Z-score is observed with an increases in age until the age cohort of 48 to 59.9 months where a decline is present. This is seen to be common for nutritionally deprived children (Choudhry, M and Rao, 1983:18). By the age of three, the ICDS sample population is found to be greater than the -2.00 Z-score, indicating a lesser degree of stunting. The NGO sample struggles within the range of -2.5 and -3.0 Z-scores until the age of five.

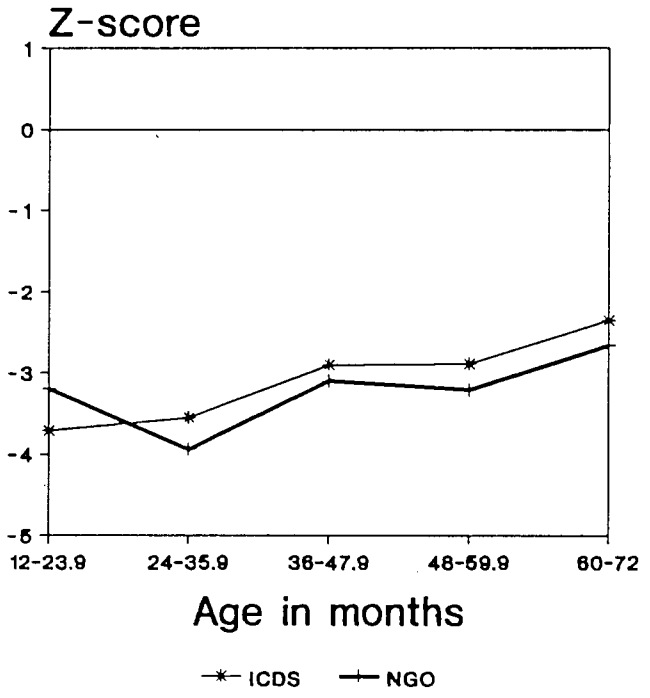
Figure 7.1 Mean height-for-age Z-scores in the ICDS and NGO samples; presented by age.



The Z-score weight-for-age, appears to increase with age with the exception of a decline exhibited for the NGO sample population for children between the age of 24 and 35.9 months (Figure 7.2). This is in contrast to the findings of others who note that a decline is usually present after the first year of life, but not the second, when breast feeding no longer meets their nutrient needs and complementary food is inadequate (Gopaldas, Patel & Bakshi,1988:31). A possible explanation may lie with the time of weaning. In the area of surveyed, weaning may not start until the child is in the second year of life. Furthermore, because such a small sample of children was used when stratified by age (3), it may not reflect the situation accurately. The ICDS population sample shows a steady incline reaching a plateau between the ages of 36 and 60 months.

Both populations still do not reach the cut-off point of -2.00 weight-for-age Z-score, indicating that the degree of underweight is greater than that of stunting.

Figure 7.2 Mean weight-for-age Z-scores in the ICDS and NGO samples; presented by age.



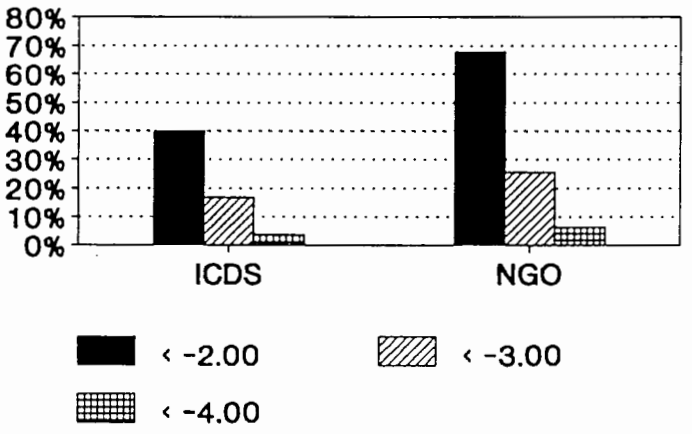
Prevalence of Malnutrition

Prevalence of malnutrition may be estimated using cut off points of Z-scores. Using the NCHS as a reference data set, the percentage of children lower than the -2.00 Z-score are considered to be mildly malnourished, those less than -3.00 Z-score are considered to be moderately malnourished and if a Z-score of less than -4.00 is reported, the children are considered to be severely malnourished. The form of malnutrition depends on the variable used (ie. weight-for-age, height-for-age or weight-for-height).

The prevalence of stunting or past nutritional status (height-for-age $\leq$ -2.00), was

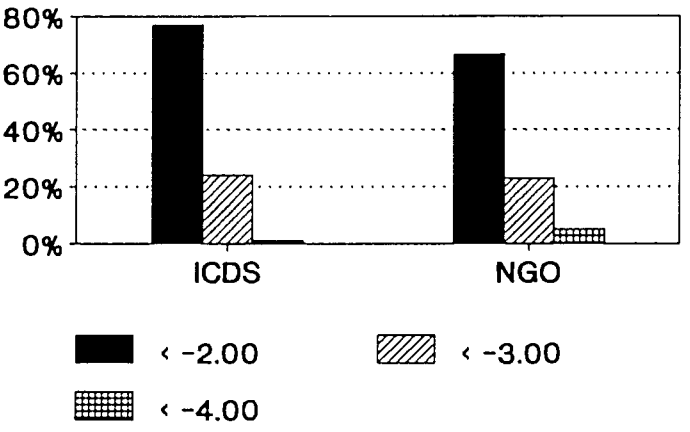
found to be 68% of the NGO population as compared to 40% of the ICDS children (refer to Figure 7.3). Past studies have reported that 65% of Indian children between the ages of 25 and 59 months have a standard deviation less than 2.0 for the Z-score height-or-age (UNDP, 1993:157). Therefore, the NGO percentage is comparable to the Indian standards but the ICDS population has a much lower percentage.

Figure 7.3 Percentage of ICDS and NGO children lower than the cut-off points -2, -3 and -4 for height-for-age.



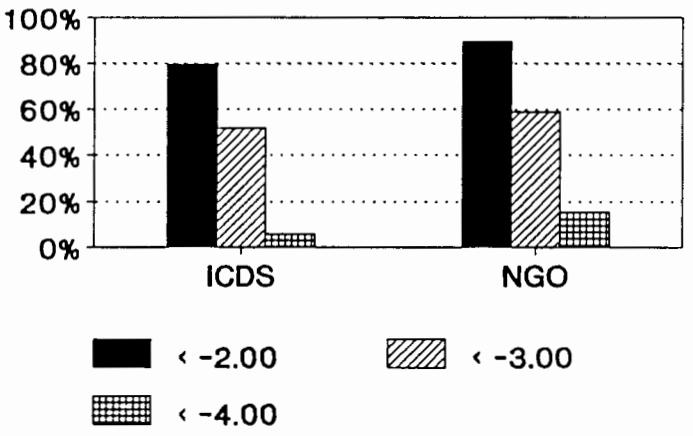
The percentage of children $\leq$ -2.00 for the index weight-for-age, was found to be 72% of the ICDS population and 67% of the NGO population (see Figure 7.4). This percentages are comparable to the Indian average of 69% (ACC/SCN,1993:11). The more severe grade, less than -3 standard deviations, is also similar to the Indian average of 27% (ACC/SCN,1993:9).

Figure 7.4 Percentage of ICDS and NGO children lower the cut-off points, -2, -3 and -4 for the indicator weight-for-age.



The majority of children in both programmes suffer from wasting as indicated by present nutritional status (weight-for-height $\leq$ -2.00) (Refer to Figure 7.5). Although this figure was calculated for children between the ages of one and five it is interesting to note that the percentage is much higher than that reported elsewhere. The Human Development Report stated that 27% of Indian children between the ages of 12 and 23 months were reported to be less than -2 standard deviations for the Z-score weight-for-height (1993:157). PEM as indicated by arm circumference, also shows that the majority of children in both programmes suffer this form of malnutrition.

Figure 7.5 Percentage of ICDS and NGO children lower than the cut-off points -2,-3 and -4 for the indicator weight-for-height.



Gender Differences

Although a preference for boys in India, and specifically Rajasthan, has been well documented (Dept. of Women and Child Development,1991:10). Table 7.3 shows that only one nutritional status indicator, mid arm-circumference, demonstrated a significant difference in the case of gender. However, not in favour of males, but rather females. The preference of the boy child is not as prominent for the Bhils, as the girl child is an asset in two ways; when unmarried, she assists in household and agricultural work and when married brings for her father a considerable amount of bride price (Vyas,1992:62).

Table 7.3 Comparison of mean Z-scores of height-for-age, weight-for-age, weight-for-height and mid arm circumference for gender.

MEASURE	MALE N	MEAN	SD	FEMALE N	MEAN	SD	t-sig
Height-for-age	87	-2.0070	1.436	74	-1.8959	1.248	.53
Weight-for-age	87	-2.8884	0.920	74	-3.0935	0.892	1.43
Weight-for-height	87	-2.3756	0.884	74	-2.5484	0.805	1.30
Mid arm circumference	87	-2.9210	0.685	74	-2.6247	0.681	2.77**

**$p \leq 0.01$

7.2.3 Correlations

Using Pearson's correlation, the predictors of nutritional status were examined. The literature emphasizes that many variables influence nutritional status, and thus the indices of nutritional status. These variables include the mother's level of education, income levels, intake of food, birth order of child, number of children and sanitation conditions such as source of water (Pelto,1989:149-150). In the selected study areas, mother's level of education did not correlate significantly with any of the nutritional indices[7], noting that very few mothers were literate (less than 8% in the NGO population and less than 3% in the ICDS population). A study conducted by Christian et al. found that although there was some association of nutritional status with mother's education, statistical evidence did not reveal any significance quite possibly due to the low percentage of women sampled being literate (6%) (1988:38). This may be part of the reason why no significant association was found in this study.

The variables of income or those used as proxies of income did prove to be associated with many of the nutritional status indices (Table 7.4). Income from day

[7] Nutritional indices refer to height-for-age, weight-for-age, weight-for-height and arm circumference Z-scores.

labour and electricity (a proxy variable for income) were positively correlated with the indicator height-for-age. For the indicator weight-for-age, income from day labour was found to be positively associated. Four variables were associated with the weight-for-height indicator, with three of the four being negative associations. The associations with arm circumference were minimal and negative.

Table 7.4 Pearson's correlation scores of height-for-age, weight-for-age, height-for-weight and mid arm circumference Z-scores with income variables.

VARIABLES	Height-for-age Z-score	Weight-for-age Z-score	Weight-for-height Z-score	Mid arm circumference Z-score
Father income	-.0783	.0017	-.0511	-.1698*
income from day labour	.1381*	.2060**	-.1273	.1115
per capita father income	-.0640	.0423	-.0814	-.1435*
per capita day labour	.0291	.1787*	.1968**	.1035

*p≤0.05; **p≤0.01; ***p≤0.001

Other variables that correlated with the standardized measures of nutritional status are summarized in Table 7.5. The more significant variables associating with height-for-age include the number of years child has attended the centres and father's age. Weight-for-age associated positively with years child has attended the centre as well. Weight-for-height and arm circumference did not significantly correlate with any of the variables ($p \leq 0.001$).

Table 7.5 Pearsons correlation scores of individual and household parameters with standardized measures of children's nutritional status.

VARIABLES	Height-for-age Z-score	Weight-for-age Z-score	Weight-for-height Z-score	Mid-arm circumference Z-score
fathers's age	.1962**	.0666	-.1057	.1325*
mother's age	.1579*	.0279	-.1109	.0985
days per week child attends Anganwadi or Balwadi	.1643*	.1211	-.0297	-.1409*
Years child has attended Anganwadi or Balwadi	.3022***	.3176***	.0094	.0116

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

The dichotomous variables such as object used to retrieve drinking water, were analyzed for predictors of nutritional status using the Man-Whitney U test. It was found that none of the variables were predictors of nutritional status.

7.2.4 Multivariate Analysis

To evaluate the contribution of several independent factors to variation in children's nutritional status, forward stepwise multiple regression was performed. This was done in two ways: 1) aggregating the ICDS and NGO Z-scores: and 2) a separate analysis within each of the ICDS and NGO programme areas.

The independent variables used were age of child, sex and those variables described in Table 7.4 and 7.5. Only one income variable was used in the equation due to a high auto-correlation factor. The variable, type of programme (ICDS or NGO) was forced into the equation in order to determine the contribution of that independent variable. Regression equations were obtained for all indices except weight-for-height. The final regression models for nutritional status combining the sample populations of both programmes are described below.

Table 7.6 presents the correlates of children's height-for-age variation. Child's environment, namely type of programme, correlated with the height-for-age status after controlling for child's age. Thus, children of the ICDS sample population tend to have a better stature than those of the NGO sample population. Similarly, the older the child the better stature growth of the child. Overall, the independent variables together account for 12% of the variation leaving the remaining 88% unaccounted for by this equation.

Table 7.6 Multiple regression of predictors of children's height-for-age status. The dependent variable is height-for-age with number in sample being 161.

Independent variable	Regression coefficient (±SE)	b	p
programme (ICDS=0; NGO=1)	-.51131 ± 0.19968	-0.18994	.0114
child's age (months)	0.39282 ± 0.09608	0.30326	.001
constant	-3.15312 ± 0.38234	-	.000

$R=0.36243$; $R^2=0.12036$; $F(2,158)=11.94637$; $p \leq 0.000$ $(n=161)$

Participating in the ICDS or NGO health programme did not vary the correlates for weight-for-age (Table 7.7). Age was the only independent variable reported as being significant ($p \leq 0.000$) meaning that the older the child is the less underweight.

Table 7.7 Multiple regression of predictors of children's weight-for-age status. The dependent variable is weight-for-age with number in sample being 161.

Independent variable	Regression coefficient (± SE)	b	p
age (months)	0.31534 ± 0.06608	0.35679	.000
programme (ICDS=0, NGO=1)	-0.19361 ± 0.13647	-0.10607	.1580
constant	-4.04171 ± 0.26071	-	.000

$R=0.37319$; $R^2=0.12809$; $F(2,154)=12.45870$; $p \leq 0.000$

Table 7.8 presents the correlates of children's weight-for-height variation. While controlling for age, no independent variables including programme type accounted for

variation in wasting. Overall, the independent variable only accounted for 1% in variation. This implies that wasting could not be found to have any significant relation to factors identified in this study.

Table 7.8 Multiple regression of predictors of children's weight-for-height status. The dependent variable was weight-for-height with number in sample being 161.

Independent variable	Regression coefficient ± SE	B	p
age	0.03682 ± 0.06681	.13637	.5824
programme (ICDS=0; NGO=1)	0.03678 ± 0.137966	.02145	.7920
constant	-2.60261 ± 0.26360	-	.000

$R=0.04909$; $R^2=-.01005$; $F(2,154)=0.18598$; $p<0.8305$

The correlates for children's arm circumference presented in Table 7.9, explain approximately 6% of the variation. The variable programme type was not significantly associated with arm-circumference while gender, specifically being female, significantly correlated with arm-circumference.

Table 7.9 Multiple regression of predictors of children's arm circumference status. The dependent variable is height-for-age with sample size of 161.

Independent variable	Regression coefficient ± SE	B	p
age	-.05279 ± 0.05297	-.07818	.3250
Programme (ICDS=0; NGO=1)	-.13162 ± 0.10937	-.09438	.2370
sex (Male=0; Female=1)	.31172 ± 0.10999	0.22251	.0052
constant	-2.95250 ± 0.07240	-	.0000

$R=0.24675$; $R^2=.06088$; $F(3,153)=3.30637$; $p<0.0219$

Multiple regression is often used as a tool for determining the variance of nutritional status by factors associated with nutritional status (i.e. child's age, mother's education). The regression equations determined above do not account for very high percentages of the variation indicating that factors outside the present study may contribute more.

Within the ICDS population a greater variety of variables were included in the linear regression equation. For the nutritional status indicator height-for-age Z-score, increase in age and access to handpump water as opposed to open wells were combined to explain approximately 9% of the variance. Weight-for-age Z-score added gender (being male) and higher per capita income to explain 30% of the variance. For the nutritional indicator weight-for-height, higher per capita income and being male explained 7% of the variance while drinking water from a handpump was the only variable associated with the mid arm circumference explaining approximately 6% of the variance (refer to Table 7.10).

Table 7.10 Percentage variation in height-for-age, weight-for-age, weight-for-height and mid arm circumference explained by the combination of age, gender, water source, and per capita income for ICDS children population.

Independent Variable	height-for-age	weight-for-age	weight-for-height	arm circumference
age	x[a]	x		
gender		x	x	
water source	x	x		
per capita income		x	x	x
Total percentage	9%	30%	7%	6%

a: x notes the independent variables that were included in the regression equation. For example, height-for-age had in it's equation the independent variables age and water source combing to explain 9% of the variation. For more details on the regression equation refer to Appendix C.

Within the NGO population increase in age was the only variable that correlated with the nutritional indicators height-for-age and weight-for-age. No equation was found for the weight-for-height Z-score. Mid arm circumference also only had one variable correlate, gender (being female). (refer to Table 7.11)

Table 7.11 Percentage variation in height-for-age, weight-for-age and mid arm circumference explained by age and gender for NGO children population.

Independent Variable	height-for-age	weight-for-age	arm circumference
age	x[a]	x	
gender			x
Total percentage	13%	10%	18%

a: x notes the independent variables that were included in the regression equation. For example, height-for-age had in it's equation the independent variable age explaining 13% of the variation. For more details on the regression equation refer to Appendix C.

7.2.5 Perception of the Nutritional Status of Children Participating in the ICDS and NGO Health Programmes

It was stated by District health professionals that any form of health education and supplementary food can only enhance the undernourished population of Udaipur District. In terms of nutrition the community members, programme staff within and outside the villages, ANMs, MPWs and doctors working in both programme areas, stated that since the initiation of both programmes children's nutritional status has increased. However, no judgement could be made as to which programme has been more effective in increasing the nutritional status or by how much the nutritional status of the children has increased. It was also emphasized that many other factors have contributed to the increase in nutritional status of the children in the Tribal belt in the past ten years, including an increase in economic status in the region and an increase in accessibility to health services.

7.2.6 Summary and Discussion

In terms of nutritional status, the majority of the children measured had some form of malnutrition. Stunting (low height-for-age) was more prevalent in the NGO population, while wasting, underweight and PEM were prevalent in both the ICDS and NGO populations. Stunting, represents chronic malnutrition, meaning that poor intake of food was experienced by children for an extended period of time. In the case of the NGO sample population, a mean Z-score of -2.23 for the indicator height-for-age was reported as compared to -1.70 for the ICDS sample population. These results indicate that approximately 70% of children had Z-scores less than -2.0 in the NGO population compared to approximately 40% of the ICDS sample. The fact that an increase in stunting was apparent for the NGO sample population, suggests that during the past an event has impeded the intake of food, that lower amounts and possibly lower qualities of food were given to the children since weaning. Multiple regression analysis suggests that programme type and age contribute up to 12% of the variation. Although not significant, the average age of the ICDS sample population is greater than the NGO sample population (3.71 years and 3.65 years respectively). Programme type contributes most significantly to the variation in height-for-age Z-score, revealing that children of ICDS areas tend to have a higher score. If it is assumed that stunting, implies a long term deprivation of quantity and quality of food, it reasons that the children of the NGO area have suffered more so than the ICDS sample population without adequate nutrients. Through observation and discussions by the researcher with programme staff, community members, ANMs and MPWs it has been stated that the ICDS does deliver supplementary

food in a greater quantity and quality. This high protein diet is given consistently to all children in the ICDS programmes. This may in fact be the reason why there is a significant difference between the two programme areas in terms of height-for-age Z-score.

The Z-score weight-for-age, indication of overall nutritional status (under weight) did not significantly differ between the two programme populations, however, the mean score for the NGO was calculated to be lower than the ICDS sample (-3.08 and -2.89 respectively). The percentage of children with a weight-for-age Z-score less than -2.00, was higher for the ICDS sample as compared to the NGO sample (77.11% and 66.67% respectively). Figure 7.2 shows a decrease in weight-for-age for children between the ages of 24 and 36 months. This decrease is usually seen in children after the weaning period, when children are taken off the breast milk. In this case it is seen slightly later in the development stage of the child. Considering that only three children in the first age cohort were measured, the results may not be representative for that age range. Multiple regression revealed that 12% of the variation in weight-for-age was attributed to age of the child. Other socio-economic variables did not appear to be significant.

Weight-for-height, indicator of present nutritional status was shown to be the most prevalent in children of both the ICDS and NGO populations. The mean Z-score was not found to be significantly different between the two programme areas, with the NGO sample having a Z-score of -2.43 slightly higher than the ICDS sample of -2.48. The overall high prevalence of malnutrition may be attributed to seasonality (Naborro, 1981:23). The measurements were taken at the height of the dry season, just prior to

monsoons, when the amount of food available is less, and due to heat less food is eaten. No significant variations in weight-for-height was predicted using multiple regression. Height-for-weight is considered to fluctuate due to the influences of short term affects such as seasonality.

Mid-arm circumference is considered an indicator of PEM. The majority of the both the ICDS and NGO samples are malnourished. The variations in mid-arm circumference as calculated by multiple regression reveal that sex, or being female positively correlates with the indicator.

Other factors that may have contributed to the variation in nutritional status include breast feeding practices. This data, although not collected for this study, has been demonstrated to significantly effect children's nutritional status (Grenier and Latham, 1981:137). Longer breast-feeding was associated with higher nutritional status.

The health professionals perception of the nutritional status of children participating in the ICDS and NGO programmes, indicated that there has been an increase in nutritional status of children since the initiation of both programmes. However, the health professionals could not indicate which one was the most successful programme in alleviating malnutrition.

7.3 Infant & Under Five Mortality Rates

The rates of mortality for infants (< one year; IMR) and children under five years, were calculated in two ways: 1) by dividing the number of total deaths by the number of total births (children under one year of age for IMR, and children one to five

years of age for under five mortality rate); and 2) by dividing the number of deaths by the number of births since the implementation of the ICDS and NGO programmes in the areas selected. It should be noted that the rates calculated by the second method is not by the standard means. This was due the fact that the NGO TBA programme was initiated four years prior to this study, thus five year old children could not be included in the calculation.

The findings revealed that the overall infant and child mortality rates of the ICDS population is half of that found in NGO population (Table 7.12). The 1989 IMR of rural India as reported by the Department of Women and Child Development, Government of Rajasthan was 98, comparable to Rajasthan State at 103 (1991:8). Therefore, the ICDS programme areas have half of that reported in all of Rajasthan, while the NGO programme population have comparable figures to that of Rajasthan.

The overall under five mortality rate for the NGO programme population is again comparable to the India's rate of 152 (UNDP,1993:143), however, the ICDS rate is much lower at 97 deaths per 1000 live births.

The IMR and under five mortality rate of the region has steadily decreased over the past decade, with doctors and health workers claiming that the programmes in combination with better treatment and education by the health professionals have contributed to the decline. The TBAs of the NGO villages along with Central office staff, state that since the training of TBAs in 1989, there are virtually no infant mortalities in the villages. The ICDS programmes also has been able to attain a lower IMR than that of reported for India.

Table 7.12 IMR and CMR in the ICDS and NGO sample programme areas.

Time Period	ICDS per 1000	NGO per 1000
Overall IMR	52.0	101.4
under five mortality rate	97.0	144.9
Post programme implementation mortality rate[a]	74.4	83.3

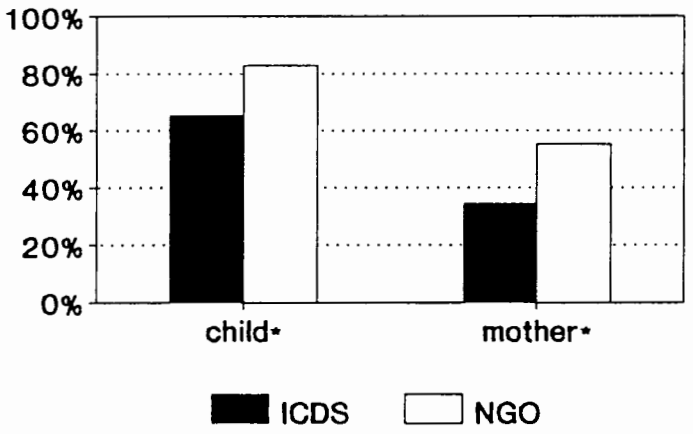
[a] In this incidence CMR, is defined as the rate of child mortality after the implementation of the ICDS and NGO programmes (1986 and 1989 respectively).

7.4 Immunization

The percentage of children and pregnant mothers immunized was found to be significantly higher for those from the NGO sample population than those from the ICDS population (Figure 7.6). While approximately 83% of the children surveyed from the NGO area responded to being immunized, only 65% of the ICDS children were immunized. In comparison to the India percentage of 92% (UNDP,1993:157), the ICDS percentage falls lower than the NGO percentage.

Although immunization of mothers during pregnancy has not reached the level as that demonstrated for children, over half the mothers from the NGO sample population have been immunized as compared to one third from the ICDS programme.

Figure 7.6 Immunization percentages of children and mothers during pregnancy in ICDS and NGO areas.



Interviews with ANMs and MPWs revealed that the NGO areas have an extremely good knowledge of the importance of immunization and when it should occur. All MPW of the area exclaimed that an almost 50% increase in immunization rates of children was observed after the NGO was operating in the villages. The same was not stated for the ICDS areas. In fact, many ANMs insisted that it was them not the programme that encouraged immunization in the area.

The ANM and MPW working in both areas stress the increase in acceptance of immunization from the NGO areas. Although the ICDS areas have also seen an increase in immunization in the psst few years, the NGO covered areas have leaped forward. This

was verified by the VHW, TBA and community members of the NGO area. All indicating that since the NGO has been operating in their village an increasing awareness of the importance of immunization has been observed.

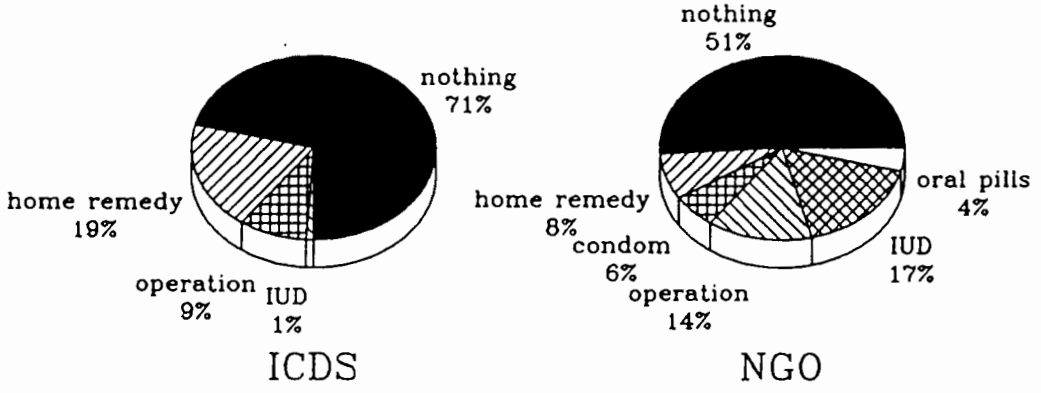
7.5 Family Planning Methods

India, known for it's ever increasing population, has strived to decrease the birth rate through education on family planning methods. Both the ICDS and NGO programmes have attempted to educate their communities, working with the ANM and MPW of the area. The findings show that a greater percentage of NGO programme couples use birth control methods and a greater variety as compared to the ICDS population (Figure 7.7). While 41% of the NGO households surveyed reported to be using some from of family planning methods, only 18% of the ICDS households responded yes. Considering the overall percentage in India is reported to be 43% by the UNDP (UNDP,1993:181), (the rural areas being far less), the NGO areas are keeping par, but the ICDS areas have a lower percentage.

The family planning methods used by the NGO population offer more variety exceeding the Indian percentage of IUDs by over 12%, and condom and/or pills by 5% (UN,1989:1). The use of condoms or pills is reported to be nonexistent in the ICDS population while use of IUDs is minimal. Sterilization is approximately doubled at 14% in the NGO population still lower than the Indian percentage of 28% (UN,1989:1). It is important to note that the use of 'home remedies' is 10% higher in the ICDS community, being the most popular form of birth control indicating education of family planning

methods have not been as successful in the ICDS areas.

Figure 7.7 Variety and frequency of family planning methods used by ICDS and NGO sample populations.



7.6 Summary and Discussion

The nutritional status of children as depicted by Z-scores revealed that the majority of both the ICDS and NGO populations were malnourished, however stunting was found to be significantly greater in the NGO population. The type of programme, age of child and sex contributed to not more than 12% of the variance of nutritional status. Overall infant and child mortality rates are more favourable for the ICDS community, whereas post programme implementation under five mortality rate was shown to be similar. Immunization and the practice of family planning methods is shown to be more successful in the NGO programme. The qualitative information analyzed

suggested that both programmes have contributed to the overall health of the population they operate in, with more impacts seen in the NGO population in terms of immunization, family planning and recently IMR. The overall consensus of professionals was that the NGO areas tended to be more aware of health issues than the ICDS programme areas. This was confirmed through group discussions and participant observation.

CHAPTER EIGHT

ASSESSMENT OF EFFICIENCY OF THE ICDS AND NGO HEALTH PROGRAMMES

8.1 Introduction

The assessment of efficiency consists of an analysis of the results obtained in relation to the efforts made and the resources used. The resources used fall into two categories distinguishing between financial cost and technical costs. The financial cost refers to the amount of funds needed to complete operations, whereas technical costs refer to the number of staff and time given by each staff members to operate the programme.

As with most health programmes there are many objectives thus making a comparative analysis difficult. Determining the financial cost of operating CIH programmes is difficult and in many instances impossible. In the case of the ICDS and NGO health programmes, there is not one health issue. Both programmes attempt to address many issues. Thus in order to compare the two programmes the most effective method is to look at the cost of operating in one community and then if possible the cost per family.

8.2 Financial Costs

For the ICDS programme operating in Rajasthan, an estimated budget for 1991/92 was reported to be 245,382,000 Rp ($9,815,280 CAN). With 130 schemes operating in Rajasthan and assuming each scheme receives an equal share, 1,887,553 Rp. ($75,502

CAN) is the estimated budget for each scheme. Within Udaipur district there are 1689 Anganwadi centres in operation resulting in an average expenditure of 12,293 Rp/year per centre. If the estimated amount of families to be affected numbers 10,000, an average of 188.75 Rp. per year is to be spent per family. If one were to assume that the recipients of the programme were each member of the household, then an average of 27.7 Rp/year was spent in 1992 (mean number of persons per household = 6.82). Although the budget does not indicate whether these costs are recurring, non-recurring or both, it may be assumed that the budget includes staff salaries, rent for buildings, training, and transportation. It does indicate that the nutritional supplements given to the children and the jeep used for transportation are donated. The food is donated by an international organization, within Udaipur District the World Food Programme is the donator. The non-recurring costs of the jeeps, are donated by UNICEF.

The estimated total budget for the health unit of the NGO (1992), is 2,804,820 Rp. with recurring costs equalling 2,344,120 Rp. If one were to subtract the amount spent on vehicles and supplementary food, the budget decreases to 2,124,120. In the year 1992, services were operating in 188 villages, with the average amount spent for each village equalling 11,298.51 Rp. It is estimated that 11,553 households were participating in the health programme, resulting in an average of 184 Rp per year spent on each household. If the mean number of persons per household was 5.64, then an average of 32.6 Rp per year was spent in 1992. The construction costs of buildings are not included however the staff, medicines and training were included in the budget.

It must be noted that these are estimates of budgets, and in both programmes the

actual expenditure is less. In the case of the ICDS programme, the target is 10,000 children however the actual amount tends to be 65% of the target. In the case of Seva Mandir, approximately 80% of the yearly budget is actually spent. In no way are these calculations a true reflection on what amount is spent or where, but the calculations may be used as a means to differentiate between the two programmes. There is very little difference between the two programmes in terms of financial costs.

Table 8.1 Financial costs of operating the ICDS and NGO programmes per village, per household and per person.

Parameter	ICDS (Rp/year)	NGO (Rp/Year)
Cost per village	12,293	11,298
Cost per family	189	184
Cost per person	27.7	32.6

8.2.1 Funding Sources

The source of funding to initiate and operate programmes influence the stability and sustainability of the programmes which in turn reflect on the efficiency and effectiveness of the programmes.

The ICDS programme of India is funded by the Central and State Government Schemes. Originally, UNICEF provided the initial 15,000 Rp as start up cost for each project. All costs are now borne by the Central and State Governments. Within Udaipur District The Central Government funds seven projects with the remaining four, being funded by the State Government. As mentioned previously, transportation vehicles, the supplementary food and games are donated by international organizations.

The NGO's financial support stems from both foreign and governmental organizations. More than 40% of the NGO's total annual income comes through foreign contributions with the remaining contributed by Central and State Governments directly or indirectly and by some non-government agencies in the country. Major foreign contributors include Interchurch Co-ordination committee (ICCO), Evangelische Zentralstelle Fur Entwicklungshiffe (EZE), Canada India Village Aid Association (CIVA), Ford Foundation, Deutscher Volkshochschul Verband (DVV), United Church, International Association for Religious Freedom (IARF) and other individual donors. From the Government Seva Mandir has received full financial support from the Ministry of Education and partially from the national mission for wasteland development (NMWD) and the Council for Advancement of People's Action Rural Technology (CAPART). Support is also received from the Sanitation and Community Health (SWACH) of Rajasthan. The health Unit of the NGO receives approximately 10% of the NGO's total annual income. The organizations directly contributing funds to the health unit are CIVA, ICCO, EZE and the Private Volunteer Organization of Health (PVOH) of India.

8.3 Technical Costs

Technical costs are any resources that do not relate to funds. In the case of health programmes, technical costs may be seen as number of staff and the time required by staff members.

8.3.1 Number of Staff

Staff refers to the workers paid to carry out certain tasks. For CIH programmes, the most important staff are the participants and ground staff workers. A contrast can be seen in the number of villagers hired as staff for the ICDS and NGO programmes (Table 8.2). The ICDS programme requires two employees where as the NGO hires six for relatively the same jobs but paid less.

Table 8.2 Number of Staff employed by the ICDS and NGO programmes at the village level with average salaries presented.

	ICDS		NGO	
Indicator	Number of Staff	Salary/month	Number of Staff	Salary/month
Staff	Anganwadi Worker	375	CHW	50
	Assistant	200	VHW	150
			Sanchalika	100
			Comotivator	50
			TBA	15
			Part-time worker	50
Total	2	575	6	415

The staff having a more administrative role are situated at the zonal, block and District levels. The ICDS employs one LS to oversee operations of 20 centres in the rural areas, 17 in the tribal areas and 25 in an urban setting. Since the areas covered by the ICDS programme in Sarada block cover rural and tribal areas, the LS is expected to supervise 20 Anganwadis. At the block level, the CDPO is in charge of the overall operation and is responsible for the implementation of the project. Supporting staff in the form of clerks, an accountant, driver, peon and night watchman are employed.

The NGO programme employs two staff for each designated zone, referred to as

zonal workers. These workers coordinate the operations of six to ten villages depending on the human settlement pattern in the Zone. At the Block level, the health educator and professional assistants such as the forester in charge and public assistant are employed as full time workers. The central office houses the assistant secretary and the block-coordinator who oversees the operations and coordinates block programmes. The health unit consists of the head, a doctor, a person in charge of the TBA programme, two assistants an accountant and clerk. Since the Health Unit accounts for one of the nine activities executed by the NGO, only the persons directly related to that unit are discussed.

Table 8.3 provides the number of staff employed for the ICDS and NGO programmes at the administrative levels.

Table 8.3 Number of ICDS and NGO staff employed at each of the administrative levels.

Level of Operation	**ICDS**	**NGO**
Zone	-	2
Sector	1	-
Block	2	1
District	2	7
TOTAL	5	10

8.3.2 Staff Time Required

The technical cost of time required by staff allows one to assess the input required to operate the programmes. At the village level the estimated time required by the AWW is five hours per day in running the centre for six days a week and additional ten hours

recording data and surveying the area monthly. The assistant cleans the centre, prepares the food and assists the AWW, contributing an estimated 120 hours per month.

The NGO employs its paraworkers part-time at the village level. The CHW, is responsible for an area that includes four to six villages contributing approximately five hours to each village per month. The VHW operates in one or two villages spending approximately 10 hours a week or 40 hours a month running meetings, providing medicines. The Sanchalika runs the pre-school for two hours a day, six days a week and prepares the meals, spending approximately 72 hours a month. The TBA and comotivator spend up to 20 hours a month, depending on the number of births in the village.

A summary of the estimated time spent by ICDS and NGO paraworkers is given in Table 8.4.

Table 8.4 Time spent by ICDS and NGO staff in the field.

LEVEL	**ICDS**	**Hours/month**	**NGO**	**Hours/month**
Village	AWW	130	CHW	5
	Assistant	120	VHW	40
			Sanchalika	72
			TBA	20
			Comotivator	20
Total		250		157
	hours per household	5	hours per household	5
	minutes per person	44	minutes per person	53

At the administrative levels the ICDS and NGO employees work full days and as described earlier, more staff are involved with the NGO programme indicating more hours spent on health programming than in the ICDS programme.

8.4 Summary and Discussion

Although it is difficult to deduce the exact cost of operating health programmes, an attempt has been made in order to assess the resources the programmes require. The overall financial cost required to operate the ICDS and NGO programmes are similar. However more staff is used in the NGO programme at the village and upper levels, and as more time is required. The structure of the programmes influence the way in which resources are allocated and to whom. A social cost benefit presented in table 8.5 lists the benefits gained from each programme with the costs incurred. The quality or effectiveness of the benefits is not assessed, however, the analysis provides the opportunity to appraise the costs against the benefits.

Table 8.5 Cost/benefit table describing the costs incurred to provide the benefits listed.

Costs	Benefits
ICDS	
2 village level staff 5 total administrative staff 55 minutes per person 27.7 Rp per person per year	Supplementary food to children Health check ups of expectant, nursing mothers, children Immunization of expectant mothers against tetanus Immunization of children Referral services Health education Non-formal preschool education
NGO	
6 village level staff 10 total administrative staff 53 minutes per person 32.6 Rp per person per year	Supplementary food to children Health check ups of expectant, nursing mothers, children Immunization of expectant mothers against tetanus Immunization of children Referral services Health education Non-formal preschool education --- Latrine material provided to some households Cheese cloth to filter water provided to majority of households Trained TBAs provided with sterilized kits Medicines provided to Sanchalika and VHW to provide at cost to community members Some family planning methods provided to community members Smokeless furnaces, kitchen gardens and renovations of compost pits encouraged

For the amount of expenditure in terms of time and funds, more benefits are seen to be delivered to the NGO sample population.

CHAPTER NINE

ASSESSMENT OF THE BREADTH AND FORM OF COMMUNITY INVOLVEMENT IN THE ICDS AND NGO HEALTH PROGRAMMES

9.1 Introduction

Community participation in health development may incorporate the community in many or all aspects of the development programme. This chapter examines the ways in which the ICDS and NGO programmes involve the community by using Shrimpton's framework of analysis (Shrimpton,1989, see Table 3.2).

9.2 Breadth of Community Involvement

Using Shrimpton's framework of analysis for community participation, the NGO initiative scores considerably higher than the ICDS programme.

INDICATOR	ICDS	NGO
Needs assessment/action choice	1	4
Organization	2	4
Leadership	2	4
Training	3	4
Resource Mobilization	1	3
Management	1	4
Orientation of actions	5	5
Monitoring evaluation/ information exchange	2	5
TOTAL (OUT OF 40)	**17**	**33**

Needs Assessment/action Choices

The first indicator, needs assessment/action choices, is ranked higher for the NGO programme than the ICDS. The government programme assessed the need for their project through specialists located throughout India. This assessment was based on failed

sectoral projects of the past and the needs seen by those experts in the field. The project was then replicated throughout India with refinements. There was no needs assessment conducted for the study area selected for this research. Through a formula, it has been calculated that for a Tribal population of 750, one Anganwadi Centre should operate. The location of the centre was decided by the local government along with staff. Thus a needs assessment was not conducted when the anganwadi was established in the communities, nor has one been conducted since. Because a set agenda and method of operation is instilled in each community, new action choices are not considered unless coming from the higher ranks, meaning the State or District level.

The NGO programme, on the other hand, evolves objectives and strategies. Needs assessment is mutually completed by staff and community members with a final decision made by the community. For example, one community may not want water tanks built in their village, and thus none are constructed.

Organization

Considering that the communities in the area of study consisted of 30 to 80 households, self contained local organizations where present were informal. Having stated this, the ICDS programme ranks 2 due to the fact that usually the local political official of the area (includes up to 5 villages) is the only one consulted. Tribals, who live on the outskirts of the larger villages, are usually not represented by that politician and thus not consulted. The NGO initiative on the other hand, must have the participation of the community as a whole, and groups are formed with the informal

leaders of the community who develop plans and plan budgets along with the Zonal workers.

Leadership

Leadership is seen as a person or a group taking initiative and responsibility for projects in the community. In the ICDS structure, leadership at the village level is represented by the AWW herself. She in turn is restricted in the approaches to achieving set objectives. In the ICDS study area the leadership is in the hands of the programme staff at the upper levels. The AWWs interviewed felt that although they were in charge of the centres, the real control was with their supervisors.

Each NGO community varies with respect to what stage of leadership development was present. Half of the communities studied exhibited control of projects, however in a more partnership role with the NGO staff at the Zonal and block levels.

Training

In terms of training, the Government programme trains the AWW prior to service for three months with a refresher course of 10-15 days. Training for upper level staff such as the Lady Supervisor and the CDPO is for three months and two months respectively. Although a large number of AWWs are trained in home science colleges, NGOs have become responsible for the majority of the training. This has resulted in a more participatory approach to training. The AWW should be a grade eight graduate, however in the study areas it was apparent that many were illiterate. It was stated that

it is difficult to find women in the Tribal belt with education. The three month training includes courses in child development, community work, identification of disabilities, record keeping, survey techniques, family planning and training in imparting non-formal, nutrition and health education.

The training for the NGO para workers or village staff varies depending on the positions. The VHW has an initial training period of eight days with retraining for three days every year. The TBA is trained for five days initially and retrained for three days, four times a year in order to replace birthing kits. The sanchalika (Balwadi Worker), is trained for five days initially and retrained for three days every year. A participatory approach is used, with maximum involvement of trainees. The use of visual aids and plays is especially important to Sanchalikas and TBAs who are illiterate. All courses are residential and are often conducted in the NGO's own rural training centre in Kaya. In addition many training sessions are conducted in an ad-hoc manner during village meetings, zonal meetings, and Block meetings.

Resource Mobilization

Resource mobilization is the process by which the community contributes to the health programme. In the case of the ICDS programme, the community is encouraged to participate by donation of money, grains or time in operating the Anganwadi Centre. Resource may also be in form of a rent free hut or building in which to operate the Centre. The five centres examined in this study showed little or no resource mobilization from the community.

The NGO programme is based on the principle of villagers paying in kind to support the food for children at the centres and to provide labour or cash for infrastructural projects. The community has and is still willing to provide labour and other resources to any project within the community.

Management

Management can be seen as a supervisor worker relationship or a partnership relationship. The ICDS has a more supervisor-worker relationship while the NGO tends to operate more as the latter.

The ICDS programme is structured so that the AWW is directly supervised by the LS who in turn is supervised buy the CDPO. At all levels, the administrative culture relies on a person being in charge of another at a lower level, and is thus responsible for their work. The NGO tends to operate at the partnership level, in where the responsibility is at every level. The VHW is as responsible for his/her action as is the Block health educator. Decisions and management is dispersed throughout the levels.

Orientation of Actions

Actions are considered to be impact oriented in curative and preventive terms for both the ICDs and NGO programmes. The target of both programmes are the most impoverished communities in the area. Both programmes encourage a curative and preventive method for attacking health problems in the communities. The ICDS and NGO programme use education of sanitary practices, immunization, family planning methods

and use of nutritive foods as preventive measures for health problems. The process of providing drugs and ORS to community members and by alerting the staff of illness in the community are used as curative measures of health.

Monitoring evaluation/ information exchange

Monitoring, evaluation and information exchange is an integral part for both the ICDS and NGO programmes. For the ICDS programme the AWW takes attendance daily, weighs and takes the colour coded arm circumference of each child monthly and records amount of food, oil etc. used during the month. She also takes a survey of the community and records the number of pregnancies, lactating mothers, births and deaths in the community. The same sort of information is collected by the VHW, TBA, CHW and sanchalika of the NGO programme. Additional information collected by the NGO includes: height of children as well as weight but not arm circumference; construction of kitchen gardens, compost pits, smokeless furnaces, and number of diseases; and a variety of other statistics that are relevant to each community in terms of health.

The statistics gathered at the village level are used for different purposes. The ICDs uses the weight and arm circumference data to locate the severely malnourished children, in order to provide extra food supplements. The data collected on food and oil used is to ensure that no extra provisions are being taken for other purposes. The NGO uses the data to monitor the impacts and then to further evaluate the direction in which to proceed.

9.3 Form of Participation

Using the World Bank model (Samuel,1987, see Table 3.3) participation may be analyzed in terms of objectives, intensity and instruments used.

OBJECTIVES	INTENSITY	INSTRUMENTS
ICDS		
effectiveness efficiency	information sharing	field workers of the programme community workers
NGO		
empowerment	initiating action decision making	community workers user groups

Objectives

In the broadest sense participation may be thought to be an instrument of empowerment. In the case of the NGO, empowerment is the stated goal of the organization and thus of each unit including the health unit. Throughout the programme many of the objectives are linked to the empowerment objective. For example in the long run, effectiveness, efficiency and building beneficiary capacity are involved. As stated earlier, cost sharing in terms of cash or labour, has been incorporated in any project initiated by the health unit.

The objective of participation in the ICDS programme is said to be to create awareness of the young child's needs by involving the community in planning activities, and by promoting programme activities and the notion that program services are effective (USAID,1989:6). On paper, building beneficiary capacity is sought as an objective but is not evident in the field. The AWW and not community members are in charge of maintaining the program. Effectiveness and efficiency are also stated objectives of the

program. On paper sharing costs is defined as a means for achieving efficiency and effectiveness. Empowerment is not mentioned in the reports or by staff as a clear objective.

Intensity

Intensity is seen as the extent to which beneficiaries are involved in the programme. This is considered information sharing by the ICDS programme. The ICDS programme has already been designed and organized, by the time the community is informed of a Anganwadi centre being proposed to their area, all decisions are made except for where the centre is to be located and who will run the centre. Although the community is supposed to become involved in the running of the centre, they rarely do.

The NGO programme operates in the intensity category of decision making and initiating action. The community decides on projects and indeed initiates projects in their community. Since the NGO programme varies depending on the community, decisions are tailored to that particular community.

Instruments

Instruments are the institutional devices used by the programme to organize and sustain participation (Paul,1987:5). The ICDS programme employs AWW from the community itself, although one out of the five ICDS centres in the sample survey came from a community five km away. A committee is responsible for supervising the AWC, but was not involved in the areas covered by this research. Field workers in the form of

LS supervise the centres and visits at least once a month. The AWW, is hired from the community to execute the programme.

The NGO programme also promotes village committees and staffs workers from the village. Field workers work closely with the staff at the village level, attaining a greater level of instrument use.

Interrelationships

As predicted by the World Bank report, the higher the objective the more intense and the higher the level of instruments of participation used. The ICDS programme states and practices lower level of objectives as described in the participation model, namely effectiveness and efficiency, than the NGO programme where empowerment is the clearly stated and practised objective. It then follows that the instruments used by the NGO programme are of higher status, namely community workers initiating action.

9.4 Organizational Processes

Besides the instruments described by Paul, the process of meetings, training and attitudes of staff and community members, dictate response. The NGO programme stresses the equality of people which is seen in meetings and training sessions. The structure of seating at meetings, allows one to observe the relationship between staff and community. The NGO meetings are held at the village, zone, block and central office levels. At these times everyone is arranged sitting in a circle, where there is no control/power by the staff. The staff do not sit in chairs. All persons present sit on the

floor. Monthly meetings are held separately for men and women in order to allow for the greatest level of opportunity for interaction.

In the ICDS programme, village level meetings are not conducted. At the sector (zone) level, there is a clear distinction between the supervisors and the AWW. There is no circle but rather the AWW sit on the ground, while supervisors are sitting on chairs.

9.5 Summary and Discussion

As analyzed by Shrimpton's framework, the NGO programme is more participatory. From project planning and implementation to evaluation the NGO programme instilled a more participatory process enhanced by a more participatory organizational structure. A more flexible and partnership oriented process for decision making is apparent in the NGO programme. The form of participation varied among the two programmes. The ICDS programme set an objective that is considered a lower level than that of the NGO programme lending to lower levels of instruments of participation and lower intensity of participation.

These results reflect the literature in terms of NGO versus government operated initiatives. The ICDS programme has been well evaluated in terms of participation indicating that participation is seen as increasing awareness of health and nutrition issues in the community and particularly women. In practise the programme is supposed to cater to the diverse variety of areas, but in practise this does not occur. Very few studies have been done on the NGO, thus a comparison of results cannot be done.

CHAPTER TEN

SUMMARY AND CONCLUSIONS

10.1 Introduction

This chapter interprets the findings of the study in an integrative manner, combining results to provide an insight as to the impacts of the ICDS and NGO programmes on the intended beneficiaries.

10.2 Summary of Findings

This study, being a one-time cross sectional analysis of health status in terms of nutritional status of children, IMR, CMR, percentage of children and pregnant mothers immunized, and family planning does not and can not describe the changes in health status due to the implementation of the CIH programmes. It however, does provide a window as to the perceived changes and those seen through data collected. The overall health status in terms of nutritional status is greater for the ICDS children, however the immunization rates and family planning methods used are more favourable in the NGO programme. The indicators are also not independent of each other. For example, IMR and CMR are influenced by nutritional status, immunization and family planning methods use. Nutritional status is influenced by immunization and the practice of family planning. Usually if parents are practising family planning and understand the importance of immunization, the parents are usually more educated and better informed. These interaction in health indicators are complex and difficult to decipher.

The increase in knowledge by the NGO households has probably to do with the

extra people working at the village level averaging more time than the ICDS areas. The extra time and staff seem to aid in the process of deciphering information. The extra time required to attend meetings also add to the increased knowledge of the NGO households. All the extra time and effort relate directly to the amount of involvement of the community members of the NGO programme.

As discussed in Chapter Two, NGOs are more likely to be participatory than government agencies, if the context is favourable and if empowerment is the main objective, higher levels of instruments and intensity are used therefore a higher ranking is shown. It was apparent, through group discussions, that the perception of ICDS beneficiaries is that the government must and should provide services without the community having to work. Therefore the very fact that the government is involved dampens community involvement. The organizational structure being hierarchical, the process and the beneficiaries themselves do not want the involvement.

10.3 Generalizability

Can these findings be interpreted for all ICDS and NGO villages? This question may be answered by asking the staff of the ICDS and NGO programmes if they feel that these areas can be considered representatives of all their villages. The answer is that not all areas are alike. The ICDS CDPO stated that Sarada Block is one of the poorest run programmes in the district. Due to various obstacles such as no vehicle, the LS not living in the area and a larger number of AWW that are illiterate, the AWC are not nearly operating at their full potential. This impacts the effectiveness, efficiency and community

involvement of the ICDS programmes in the area. The NGO staff also mentioned that the villages selected for this study do not represent all the villages the NGO operates in. Because of the wide variety of services operating in each village, one may appear to be working better than the others.

Both ICDS and NGO staff responded that the success of their programme rests in the hands of the staff and villagers working in that particular village. And because both programmes attempt to work closely with the doctors and more importantly the ANMs and MPWs of the area, their influence and dedication to the communities has an impact on the effectiveness of their programmes. Essentially, success relies on the dedication of programme staff and the willingness of the community to help themselves.

10.4 Interpretation of CIH

The fundamental question remains; does a more participatory programme ensure increased effectiveness and efficiency? In this study, effectiveness measured in the short term, favours the less participatory programme (ICDS) in terms of nutritional status and IMR of the sample populations. Efficiency, measured as time required by staff also favours the non-participatory programme (ICDS). This contrasts the literature as summarized in Chapter Two, that implies NGOs tend to be more effective and efficient. However, if the goal of development is for people to control the economic, social, cultural and political process that affect their lives (UNDP,1993:21), the more participatory NGO programme, in the long run is more effective and efficient because the ICDS programme is not as effective in empowering its beneficiaries. The impacts of

the NGO health programme in terms of community mobilization is just starting to be felt, if given time and circumstances remain favourable, a true sense of empowerment may be demonstrated. The ICDS programme does not claim to empower the communities, but uses participation as a means for involving the community in health issues. Therefore, as a concept and in practise, CIH is used more so as a means by the ICDS programme while the NGO programme views it as an end.

10.5 Conclusions

As the goal of health for all by the year 2000 approaches, and the gap between the rich and the poor in terms of accessibility to health care services widens, all programmes that improve the situation must be commended. Both the ICDS and NGO programmes fulfil a service that is essential; attempting to reach persons that the overstrained health system of Udaipur District can not reach. The time, dedication, resources and organizational structure to enhance community involvement is somewhat lacking in the ICDS programme. However, the programme has achieved it's goals of decreasing malnutrition, decreasing IMR and increasing immunization rates. The NGO programme staffed with dedicated persons instilled with the concept of empowerment, has been able to improve living conditions by increasing immunization, increasing family planning and decreasing mortality rates. However, it does not follow that the more the participatory the programme is, the more efficient or effective are its outputs.

The ICDS and NGO programmes illustrate two means by which CIH may be incorporated into health development resulting in two different outcomes.

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APPENDIX A: HOUSEHOLD SURVEY

Date _____ Questionnaire #_____

1. Village Name _____
2. Zone Name _____
3. Block Name _____
4. Thesil Name _____
5. Type of health programme
   a) ICDS _____
   b) NGO _____

6. Enumerator Surname_____
7. Surname of Respondent _____
8. Who responded to questionnaire yes/no

   a) male head _____
   b) female Head _____
   c) child present _____
   d) neighbour(s) present _____
   e) worker present (ANM or VHW) _____

A) General Information

1. Family or household number _____
2. Type of family: a) nuclear _____
   b) joint _____
   c) extended _____
   d) other _____

3. Caste: a) scheduled caste _____
   b) Scheduled tribe _____
   c) General _____

4.

Household position	Name	Sex M/ F	Date of Birth	Years of Education	Literate Y/N	Occupation primary	Occupation secondary	Income Generated
Father								
Mother								
Child 1								
Child 2								
Child 3								
Child 4								
Child 5								
Child 6								
Child 7								
Child 8								
Others								

5. For children attending the anganwadi/balwadi. How often do they attend and how many years have they been attending?

6. How does the child benefit from attending?

B) Socio-economic Information

1. Status of House
   a) rented _____
   b) owned _____
   c) other _____

2. Number of rooms in the house _____

Is the kitchen separated? a) yes _____
b) no _____

Where are the animals kept? _____

3. Type of roof
a) grass/sticks _____
b) sticks/shingles _____
c) tin/corrugated metal _____
d) cement _____
e) other _____

4. Type of walls
a) mud _____
b) stones _____
c) stones/mud _____
d) burnt bricks _____
e) bricks with cement _____
f) other _____

5. Type of floor
a) mud _____
b) stone/brick _____
c) cement _____
d) other _____

6. Electricity in the house a) yes _____
b) no _____
If yes, used for what purpose _____

7. Household possessions
a) radio _____
b) bicycle _____
c) TV _____
d) tractor _____
e) other _____

8. Type of stove
a) chula with smoke _____
b) chula without smoke _____
c) kerosene stove _____
d) gas stove _____
e) other _____

If chula, what type of ventilation

a) window _____
b) slits in roof _____
c) nothing _____

If chula, what is burned and from where

a) wood_____from_____
b) khunda_____from_____
c) other_____

9. Source of drinking water

a) personal handpump _____
b) personal well _____
c) communal handpump _____
d) communal well _____
e) stream _____
f) other _____

If well indicate type a) stair well _____
b) rope well _____

10. Source of income:

	Amount per month
day labour	
agriculture	
livestock	
other	
total	

11. Livestock:

Animal	number	obtained how	use	quantity of produce	income generated
cows goats sheep water buffalo chicken camel other					

14. How much land do you own? _____

15. How much land do you cultivate? _____

16. Is this land a) owned_____or b) rented_____?

17. Crops:

Type of crop	boras per year	Use of produce	Income generated

18. Do you have a kitchen garden? a) yes _____
b) no _____

c) Health Issues

1. Where do you store your drinking water?_____

2. Do you filter your drinking water?_____

3. How do you filter your drinking water?_____

4. How do you retrieve the drinking water from place of storage?_____
_____

5. Do you are anyone add medicine to the water source to purify it?
_____

6. Where do you defecate
a) personal latrine _____
b) communal latrine _____
c) field _____
d) other _____

If latrine is used is it cleaned regularly?
a) yes _____
b) no _____

7. When do you wash your hands
   a) before preparing food _____
   b) before eating _____
   c) after defecation _____
   d) other _____

8. Does anyone in the household smoke?
   a) yes _____
   b) no _____

   If yes, how many packs a day _____

   Does anyone in the household drink alcohol
   a) yes _____
   b) no _____

9. Does your family brush their teeth
   a) yes _____
   b) no _____

   What is used _____
   How often _____

10. What does your family use to bathe with? _____
_____

11. With what does your family cut their nails with
_____
_____

12. Have your children been immunized

name	yes/no

13. During pregnancy was the mother immunized?
   a) yes _____
   b) no _____

14. When household members have health complaints, where is the first place assistance is sought?

a) TBA _____
b) VHW _____
c) ANM _____
d) home remedies _____
e) hospital _____

Infant and Child Mortality Information

Number of children ever born _____

number of children survived _____

Number of children dead _____

Child name	sex M/F	date born	premature Y/N	date died	cause	mothers age @ birth

Family Planning Information

Method use: Yes/No

a) Copper T (IUD)
b) operation M or F
c) contraceptive pills
d) condoms
e) home remedy
f) natural ending of cycle
g) nothing

Anthropometric Measurements of Child Attending Anganwadi/Balwadi

Child's name _____

Date of Birth _____

Sex male_____ or female_____

Measurements	1	2	3
Height			
Weight			
Arm Circumference			

APPENDIX B: Household Survey Questionnaire Code Book

The codes used to calculate the statistics on the Household Survey (see Appendix " "), are as follows:

All questions with no response or missing were coded 99.

All yes/no questions were coded (1) for yes and (2) for no unless otherwise indicated below.

All male and female questions were coded (1) for male and (2) for female.

All numerical data were coded as specified on the survey unless otherwise indicated below.

All multiple choice questions were coded numerically from (1) to (n) depending on the number of choices. For example Question A 2.: a) coded as (1); b) coded as (2); c) coded as (3); and d) coded as (4). This was done for all multiple choice questions unless otherwise indicated below.

5. Type of health programme was coded (1) if ICDS and (2) if NGO.

Part A General Information
4. This section was coded separately for each member of the family. Name was for reference and double checking information and was not used in the statistics.

Occupation was coded as follows:

(1) Agriculture (farmer)
(2) Day Labourer
(3) Permanent service
(4) Works at home
(5) Student
(6) Retired
(7) Patchworker

6. This question was coded as follows:

(1) food
(2) play
(3) learn
(4) other
(5) food and play
(6) play and learn
(7) food, play and learn
(8) food and learn

Part B income Status

2. Where are animals kept was coded as follows:
   (1) together (not separated)
   (2) within dwelling but separated
   (3) outside

6. if have electricity for what purpose:
   (1) light (one bulb in dwelling)
   (2) other

8. For the section on type of stove if household used chula with smoke and kerosene stove (a and c) it was coded (7). Also ventilation question was coded (4) if household had window and proper roof.

9. Source of drinking water was coded from (1) to (6) as indicated above with the addition of (7) representing those households with a communal handpump and communal well.

13. All animals were coded by a point system adopted by the Livestock units.

17. Use of produce was coded (1) for household use only and (2) for the combination of household use and market. Extra needed was coded (1) if household requires more and (2) if the household does not require any more grains.

C Health Issues

1. Storage of drinking water was coded (1) for matka.

3. Filtering of drinking water was coded (1) for UNICEF provided plastic filter and (2) for Cheese cloth.

4. Retrieval of drinking water from place of storage was coded (1) from glass and (2) for glass with handle.

9. For this question on brushing your teeth, the products used were coded (1) for brush, powder, paste; (2) finger with powder or paste; (3) neem or rock; and (4) other.

10. The bathing section question of what does your family bath with was coded (1) for soap and water; (2) only water; (3) sometimes soap.

11. How the family cuts their nails was coded (1) for blade; (2) for scissors; (3) for nailcutter; and (4) for knife.

Infant and Child Mortality

This section was coded as appears in survey with cause of death coded as follows:

(1) diarrhoea
(2) tetanus
(3) fever
(4) accident
(5) umbilical cord around neck
(6) chicken pox

APPENDIX C

Table 1 Multiple regression of predictors of ICDS children's height-for-age status.

Independent variable	Regression coefficient ± SE	b	p
age	.30024.14065	.23086	.0360
water source (Handpump=1; other source=0)	.66694.29586	.24379	.0271
constant	-3.05415 .54843	-	.000

$R=0.33355$; $R^2=0.08787$; $F(2,76)=4.75706$; $p<0.0113$

Table 2 Multiple regression of predictors of ICDS children's weight-for-age status.

Independent variable	Regression coefficient ± SE	b	p
age	.36487.08594	.40362	.0001
sex (male=0; Female=1)	-.59614.17715	-.31983	.0012
water source (Handpump=1; other source=0)	.49982.18204	.26285	.0076
per captia income	.00233.00102	.21915	.0252
constant	-4.13423.34960	-	.000

$R=0.58201$; $R^2=0.30299$; $F(4,74)=9.47662$; $p<0.0000$

Table 3 Multiple regression of predictors of ICDS children's weight-for-height status.

Independent variable	Regression coefficient ± SE	b	p
per capita income	.00201.000099	.21519	.0353
sex (male=0; Female=1)	-.36743.17034	-.22794	.0466
constant	-2.53872.15658	-	.000

$R=0.30760$; $R^2=.07199$; $F(2,80)=4.18037$; $p<0.0188$

Table 4 Multiple regression of predictors of ICDS children's mid arm circumference status.

Independent variable	Regression coefficient ± SE	b	p
water source (Handpump=1; other source=0)	.40663.16422	.26527	.0154
constant	-2.88212.10036	-	.0000

$R=0.26527$; $R^2=.05889$; $F(2,76)=6.13103$; $p<0.0154$

Table 5 Multiple regression of predictors of NGO children's height-for-age status.

Independent variable	Regression coefficient ± SE	B	p
age	0.47245 0.13390	0.37585	0.0007
constant	-3.95855 0.50802	-	0.000

$R=0.37585$; $R^2=0.12996$; $F(1,76)=12.50199$; $p<0.00007$

Table 6 Multiple regression of predictors of NGO children's weight-for-age status.

Independent variable	Regression coefficient ± SE	b	p
age	.28763 0.09214	0.35679	0.0025
constant	-4.13423 0.34960	-	0.000

$R=0.33710$; $R^2=0.10197$; $F(1,76)=9.74353$; $p<0.0025$

Table 7 Multiple regression of predictors of NGO children's mid arm circumference status.

Independent variable	Regression coefficient ± SE	b	p
sex (male=0; Female=1)	.54446.12963	.43404	.0001
constant	-310122.08928	-	.0000

$R=0.43404$; $R^2=.1771$; $F(1,76)=17.64087$; $p<0.0001$